

# CONTRACTOR CLOSEOUT REPORT VOLUME 2 REMOVAL ACTION NAVAL TRAINING CENTER - BAINBRIDGE PORT DEPOSIT, MARYLAND

# Prepared for:

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# LIST OF ACRONYMS

ACOE U.S. Army Corps of Engineers

BBCMP Bituminous-coated corrugated metal pipe

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

CMP Corrugated metal pipe

CQC Contractor quality control

DDD 4,4'-DDD

DDE 4,4'-DDE

DDT 4,4'-DDT

EFA-Chesapeake Engineering Field Activities Office - Chesapeake Division

EQR Environmental Quality Resources, Inc.

HASP Site-Specific Health and Safety Plan

HDPE High-density polyethylene

JSA Job safety analysis

I-Corp International, Inc.

LANTDIV U.S. Department of the Navy - Atlantic Division

LCDR Lieutenant Commander

MD DNR Maryland Department of Natural Resources

MDE Maryland Department of the Environment

M.E.T. Limited, Inc.

mg/kg Milligrams per kilogram

Modutank Treated water storage tank

MSDSs Material Safety Data Sheets

NAVFACENGCOM Naval Facilities Engineering Command

# LIST OF ACRONYMS (CONTINUED)

NFE

NFE. Inc.

**NTCB** 

Naval Training Center - Bainbridge

OHM

OHM Remediation Services Corp.

**OSHA** 

Occupational Safety and Health Administration

**PCBs** 

Polychlorinated biphenyls

PID

Photoionization detector

**POTW** 

Publicly-owned treatment works

PPE

Personal protective equipment

ppm

Parts per million

QC

Quality control

RCP

Reinforced concrete pipe

**RCRA** 

Resource Conservation and Recovery Act

SHARP

Safety and Health Awareness/Recognition Program

Solmax

Solmax Geosynthetics, Inc.

SSO

Site safety officer

**TCLP** 

Toxicity Characteristic Leaching Procedure

TCL/TAL

Target Compound and Target Analyte Lists

TPH

Total petroleum hydrocarbons

TWT

Taylor Wiseman & Taylor, Inc.

**USTs** 

Underground storage tanks

**VOCs** 

Volatile organic compounds

WSE

Water surface elevation

# EXECUTIVE SUMMARY

OHM Remediation Services Corp., (OHM), a wholly-owned subsidiary of OHM Corporation, was contracted by the Navy, via LANTDIV RAC Contract No. N62470-93-D-3032 (Delivery Order 014) on 29 March 1994, to perform a removal action at the Naval Training Center - Bainbridge (NTCB), Port Deposit, Maryland. Field construction work was essentially completed on 25 May 1995 while punchlist items and various site improvements were completed on 28 August 1995. The initial remedial design was prepared by Ecology & Environment, Inc., a Navy CLEAN contractor. Due to changed field conditions, the Navy authorized value engineering design modifications prepared by OHM. Work was performed at three areas: Old Landfill Area (Site 1), Firefighter Training Area (Site 2), and the Wetland Mitigation Area.

At Site 1, a 14-acre geosynthetic cap system was installed over the former base sanitary landfill. Prior to Site 1 cap construction, investigative work was performed by excavating test pits to delineate landfill waste materials outside the design cap limits. The Site 1 landfill cap included geonet/geotextile geocomposite installed over the final soil cover layer for gas collection, 40-mil high density polyethylene (HDPE) geomembrane, and geonet/geotextile geocomposite installed as a drainage layer. Nominal ½-foot-thick vegetative and 1½-foot-thick barrier soil layers were installed over the geosynthetic layers. Permanent drainage features, restored wetlands, and 2,500 linear feet of access road were installed at the cap perimeter.

At Site 2, petroleum hydrocarbon and pesticide impacted soils were excavated, stabilized, and transported to Site 1. Concrete buildings, vaults and a portion of the former training pad were demolished, transferred to Site 1, and ultimately placed under the landfill cap. Impacted soils from Site 2 were placed between two sections of the former base landfill at Site 1 prior to construction of the geosynthetic cap. Approximately 450 investigative and confirmatory soil samples and 45 water samples were collected and analyzed during material removal and temporary water treatment activities at Site 2.

Permanent wetland losses from Site 1 activities were mitigated by creating wetlands at the Wetland Mitigation Area adjacent to the NTCB reservoir. Work in this area included soil excavation and grading to provide the required wetland hydrology. A topsoil mixture was placed and fine graded to form the wetland planting medium. The resulting wetland mitigation measured approximately 1 acre in total area and included 1,875 wetland plantings. Disturbed areas were seeded with wetland or upland seed mixes as appropriate.

Six steel underground storage tanks (USTs) encountered during excavations were removed from Site 1, cleaned, and transferred to another on-base contractor for disposal. Impacted stormwater and petroleum-contaminated UST liquids were collected and shipped to permitted off-site facilities for disposal. Water treated at Site 2 was used for dust suppression during site activities. Drum carcasses and drums containing monitoring well drill cuttings and UST cleaning materials were also shipped off site to permitted disposal facilities.

Quantities of materials excavated, treated, placed, imported, shipped off site, installed, or otherwise handled during the course of site activities are summarized in Table 1-2 of this Contractor Closeout Report.

Severe precipitation events during the summer of 1995 adversely affected completed work at Site 1. Repair work was required to address erosion on the cap and at stormwater management features. Additional repairs and stormwater management improvements were made at Site 1 as a result of heavy precipitation and rapid snowmelt during the winter of 1996.

# 1.0 INTRODUCTION

#### 1.1 PURPOSE

The purpose of this report (Volume 2) is to document the removal actions, landfill cap construction, and wetland mitigation and restoration performed by OHM Remediation Services Corp. (OHM), a whollyowned subsidiary of OHM Corporation, at the Old Landfill Area (Site 1), Firefighter Training Area (Site 2), and the Wetland Mitigation Area, at Naval Training Center - Bainbridge (NTCB), located in northeastern Maryland (Figure 1-1).

The Contractor Closeout Report for this project is divided into two volumes: Volume 1 contains the results of field and laboratory testing and Volume 2 addresses the three work areas. Volume 2 describes methods employed during site preparation, material removal and handling, fill placement, geosynthetic construction, and wetland and non-wetland site restoration.

#### 1.2 PROJECT BACKGROUND

OHM was contracted in March 1994 by the U.S. Department of the Navy - Atlantic Division (LANTDIV) to conduct removal actions at NTCB, Port Deposit, Maryland. This work was performed as Delivery Order No. 14 of the Navy LANTDIV RAC Contract N62470-93-D-3032 and in close cooperation with the Engineering Field Activities Office - Chesapeake Division (EFA-Chesapeake) of the Naval Facilities Engineering Command (NAVFACENGCOM).

Design and construction of NTCB was initiated in 1942 and it served as "boot camp" for Navy recruits during World War II (WWII) and the Korean War. NTCB was permanently closed in 1976. NTCB is owned by the U.S. Department of the Navy, but the transfer of ownership to the State of Maryland is pending. The facility encompasses approximately 1,250 acres and consists of roads, drill fields, and a few remaining buildings. Most buildings and structures within NTCB have been demolished during the last 5 years. NTCB has become extensively overgrown with vegetation since deactivation.

The NTCB removal action consisted of construction and material handling at three locations:

- Site 1 Old Landfill Area
- Site 2 Firefighter Training Area
- Wetland Mitigation Area NTCB Reservoir.

The original scope of the removal action evolved and expanded considerably during the course of work. The updated and revised scope of work eventually included the following tasks:

- Excavation of approximately 70,000 bank cubic yards of impacted soils and landfill material from Sites 1 and 2; and, placement of the same excavated material onto the Old Landfill surface at Site 1
- Collection and on-site treatment of approximately 460,000 gallons of impacted water at Site 2
- Implementation of a comprehensive investigation of soils, sediment, liquids, and other materials at Sites 1 and 2



- Collection and analysis of confirmation samples following removal of impacted materials at Sites 1 and 2
- Design, earthwork, and planting for the approximately 1-acre Wetland Mitigation Area adjacent to the NTCB reservoir to replace permanent wetland losses at Site 1
- Installation of a 14-acre geosynthetic cap over the Old Landfill at Site 1
- Ecological restoration of approximately 5 acres of temporarily impacted wetlands at Sites 1 and 2
- Restoration and stabilization of disturbed areas at Sites 1 and 2 and the Wetland Mitigation Area
- Administration, technical support, and quality control (QC) functions.

#### 1.3 REGULATORY ISSUES

Regulatory oversight and inspection of investigative and landfill construction activities at Site 1 was conducted by the Maryland Department of the Environment (MDE) - Waste Management Administration. Principal contact persons were Mr. William Schmidt and Mr. Ed Carlson.

Regulation of wetlands at NTCB was under the jurisdiction of the Maryland Department of Natural Resources (MD DNR) - Non-Tidal Wetlands and Waterways Division, Annapolis, Maryland. The MD DNR was closely involved with the project and determined the applicable wetland regulatory requirements for each site. The principal contact persons were Ms. Denise Clearwater and Mr. Robert Cooper.

The Department of the Army - Baltimore District, U.S. Army Corps of Engineers (ACOE) was involved with wetland issues, including delineation, early in the project. The ACOE later discontinued involvement citing ACOE policy with regard to wetlands and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. The principal contact person was Mr. Terrence Dean.

Regulation of erosion and sedimentation control, including field inspection, was under the jurisdiction of the MDE - Water Management Administration. The principal contact person was Mr. Daniel O'Leary, P.E. The MDE - Water Management Administration regional field inspector was Ms. Emily Morse.

# 1.4 <u>SITE DESCRIPTION</u>

#### 1.4.1 Site 1 - Old Landfill Area

Operation of the Old Landfill at Site 1 was initiated in the 1940s for disposal of sanitary wastes generated from daily operations. A report from a 1968 Pest Control Program Review recommended that unusable pesticides be disposed by burial in the landfill and that the containers be punctured and/or crushed to prevent reuse. Discussions with past employees indicates that such pesticide disposal did take place in the late 1960s and/or early 1970s.

In the early 1980s, approximately 50 buildings were demolished to make room for a United States Department of Labor job training center (Job Corps). Building components which had some salvage value (such as metal pipes, heating system components, or heavy beams) were removed. The remainder of the



structures were demolished, and the rubble was transported to the north end of the Old Landfill and placed on the surface; only minimal soil coverage and compaction were provided for this newly placed rubble.

Site 1 consists of the original NTCB sanitary landfill and the general area surrounding the Old Landfill as shown on Sheet AB-101. Prior to site clearing by OHM, most of the Old Landfill and the surrounding area was densely wooded. The Old Landfill Area was bounded by a drainage swale and wetlands to the north and west, and Maryland Route 276 to the northwest. A former drill field, located east of the Old Landfill, was used by OHM as a command post, operations base, and staging area for equipment and materials. The area south and east of the Old Landfill was developed by OHM for construction borrow. The wetlands north of the landfill were restored following the discovery and removal of landfill material located beyond the proposed landfill cap limits. A second landfill, designated the Rubble Landfill, is located north of the Old Landfill and the intervening drainage and wetland.

Prior to landfill regrading by OHM, a large ravine separated the landfill into east and west landfill sections. Groundwater seeps were evident at various locations near the limits of the landfill--east and west of the Old Landfill ravine. Several trenches, which were used during base operation as liquid disposal pits, were located within the limits of the proposed landfill cap. The northern "finger" pit was situated at the toe of the landfill ravine, adjacent to an intermittent stream north of the landfill. The northern pit measured approximately 20 feet wide and 80 feet in length. Three additional "finger" pits were located in close proximity to each other within the western section of the landfill. The pits each measured approximately 50 feet long and 15 feet wide, and were generally oriented northeast to southwest.

# 1.4.2 Site 2 - Firefighter Training Area

Site 2 consisted of the former Firefighter Training Area, which included a 400-foot-square concrete pad, an adjacent oil/water separator pit, and forested wetlands north of the separator pit. Adjacent to Site 2 was the former NTCB sewage treatment plant. Underground storage tanks (USTs), removed by others under a separate contract prior to Site 2 remediation by OHM, had been located at various locations within the limits of the firefighter training pad. OHM excavated each former tank location, removed impacted soils as necessary to achieve MDE clean-up levels, and collected confirmation samples for laboratory analysis. Other areas of environmental concern at Site 2 included an earthen oil/water separator pit (separator pit), two concrete oil/water separator vaults, and a forested wetland located north of the separator pit. Pre-construction conditions at Site 2 are shown on Sheet AB-201.

Three shell buildings, composed of reinforced concrete and masonry bricks and located on the southern portion of the firefighter training pad, were demolished by OHM during site remediation activities. During firefighter training exercises, the inner compartments of the three buildings were doused with fuel oil and then set ablaze. Water and fuel oil not consumed in the fire were collected in two concrete vaults located below ground, approximately 30 feet south of the easternmost firefighter training building, designated Building C on an exterior wall.

Water and fuel oil not collected in the concrete vaults flowed over land into a 175-foot-square clay-lined separator pit located southeast of the firefighter training pad. Fuel oil residuals collected as a sludge layer on the floor of the separator pit. A thin layer of sediment and organic material eventually covered the accumulated fuel oil, and thick vegetation composed primarily of *Phragmites* became established throughout the floor of the separator pit. An outlet structure, located in the southernmost corner of the separator pit, controlled the discharge of water from the separator pit into a 180-foot-long drainage swale, which in turn discharged into the Happy Valley Branch, a small tributary of the Susquehanna River.



Pesticides, primarily 4,4'-DDT (DDT), 4,4'-DDE (DDE), and 4,4'-DDD (DDD), were detected in soil and sediment samples collected from a wooded wetland area located immediately east of the firefighter training pad and immediately north of the separator pit. At least one spring and several shallow drainage swales were located within the pesticide-impacted wetland.

A former sewage treatment plant occupies an area to the south-southwest of the firefighter training area. An OHM water treatment system was operated within the remains of former sewage treatment plant drying beds during separator pit dewatering activities.

# 1.4.3 Wetland Mitigation Area

The Wetland Mitigation Area was established to offset the permanent loss of wetlands at Site 1. The Wetland Mitigation Area is located adjacent to an existing 5-acre reservoir within NTCB. The reservoir was in continual service as the former potable water supply source for the nearby Tome Institute and the Town of Port Deposit from circa 1895 to 1941. After 1941, it served as a backup potable water source for NTCB until 1976.

The reservoir is formed by a small earthen valley dam (typically 20-feet tall by 400-feet long) with interior concrete facing and a structural concrete spillway at the southeastern corner. It has a known water elevation documented back at least until 1942 on Navy drawings and high quality water inputs from surface and subsurface sources. The western side of the reservoir houses the former NTCB water supply treatment facilities (Buildings 593, 691, and 722) and contained several underground pipes, stormwater conduits, a concrete pump house foundation, and several concrete manholes within the construction area for wetland mitigation.

The site was selected because it has sufficient open land to provide the required wetland mitigation of approximately 1 acre and it has a long history of a near constant water head capable of supporting the required wetlands. Pre- and post-construction topography and sections, details, and planting schedules are shown on Sheet AB-301.

## 1.5 SCOPE OF WORK

The following sections describe the scope of work for the Old Landfill Area, the Firefighter Training Area, and the Wetland Mitigation Area. The list of subcontractors associated with the aforementioned activities is provided in Table 1-1. Material quantities associated with the following activities are provided in Table 1-2. In addition, the source and destination of each material is indicated in Table 1-2.

#### 1.5.1 Site 1 - Old Landfill Area

The general scope of work for Site 1 included placement of impacted materials transferred from Site 2, excavation and placement of landfill materials encountered outside of the future landfill cap limits, construction of a landfill cap, ecological restoration of disturbed wetlands, and general vegetative restoration and stabilization. The specific scope of work for Site 1 included the following activities:

- Clearing and grubbing within the proposed limits of disturbance to allow construction of erosion and drainage control structures, landfill cap, access road, and borrow pits
- Installation of temporary and permanent erosion controls including perimeter silt fence, berms, and weirs, and two sediment traps



- Transfer of impacted materials from Site 2 to the Old Landfill ravine
- Subsurface investigation using test pits to delineate the extent of landfill material
- Demolition of a small building structure, removal of six USTs, and plugging two water lines
- Establishment of on-site borrow pits in the area east of the Old Landfill to generate fill for use in landfill cap construction
- Importation of clean off-site fill for use in final cover and barrier layers
- Excavation and transfer of impacted soils from the western finger pit area to the Old Landfill ravine
- Construction of a temporary stormwater diversion around areas requiring excavation of landfill material
- Excavation of landfill materials from the area northwest of the future landfill cap, with transfer of the excavated materials to the area within the cap limits
- Collection and laboratory analysis of confirmation soil samples from excavated areas northwest of the landfill cap
- Placement of the daily and final cover layers over regraded or relocated landfill materials
- Installation of the 14-acre geosynthetic landfill cap, including gas vents
- Placement of barrier soil and vegetative topsoil layers
- · Construction of an anchor trench and cap runoff drainage system
- Ecological restoration of wetlands disturbed during work
- Installation of permanent stormwater management features including retention ponds, diversion pipes, discharges aprons, and rip rap lined emergency spillways and swales
- Preparation of topsoil material by composting wood chips from clearing operations, imported mulch, and on-site soil borrow
- Seeding and stabilization of the landfill cap and adjacent disturbed areas
- Characterization, transportation, and off-site disposal of water from excavations
- Characterization, transportation, and off-site disposal of waste solids and liquids associated with UST removals
- Construction of a permanent access road, installation of access road barriers, perimeter signs, and replacement of chain-link fencing.



#### 1.5.2 Site 2 - Firefighter Training Area

The general scope of work for Site 2 included delineation of areas impacted by petroleum hydrocarbons and pesticides, removal of impacted soils and sediment, demolition, water treatment, confirmation sampling, and site restoration. The specific scope of work for Site 2 included the following activities:

- Clearing and grubbing on the firefighter training pad, in and around the oil separator pit, and in the pesticide-impacted wetland north of the separator pit
- Installation of erosion controls including perimeter silt fence and earthen berms
- Collection and analysis of soil and liquid samples to assess the extent and concentrations of petroleum hydrocarbons and pesticides in the subsurface
- Dewatering of the separator pit
- On-site treatment of approximately 460,000 gallons of water from the separator pit, drummed monitoring well liquids, and standing water from the firefighter training buildings
- Installation of a temporary 1,000,000-gallon treated water storage tank (ModuTank); later dismantled upon completion of water treatment and dust control activities.
- Demolition of the firefighter training buildings, portions of the firefighter training pad, and the oil separator vaults
- Excavation of impacted soils from the oil separator pit area, below the firefighter training pad, at former locations of USTs, within the pesticide-impacted wetland, and in the vicinity of the separator vault area
- Collection and analysis of confirmation samples following removal of impacted soils and water
- Solidification of saturated soils from the oil separator pit area, the pesticide-impacted wetland, and the separator vault area
- Transfer of demolition debris and impacted soils from Site 2 to the Old Landfill Area
- Placement of clean fill in excavations resulting from impacted-soil removal
- Construction of permanent drainage features
- Ecological wetland restoration of the former oil separator pit area and pesticide-impacted wetland including wetland vegetative plantings
- Restoration of all disturbed areas.



#### 1.5.3 Wetland Mitigation Area

The general scope of work for the Wetland Mitigation Area included determining the area and type of wetland required for mitigation, designing the mitigation area and obtaining regulatory approvals, constructing the wetland, providing erosion and sedimentation controls, and preparing as-built documentation. The specific scope of work for the Wetland Mitigation Area included the following activities:

- Delineating, surveying, and classifying wetlands at Sites 1 and 2
- Determining the quantity of permanent wetland impacts at Sites 1 and 2
- Screening potential NTCB sites to select a permanent wetland mitigation area
- Preparing a wetland mitigation design for the selected site
- Preparing and submitting wetland permit applications to MD DNR
- Grading and preparing the site for the installation of wetland plants
- Installing the wetland plants
- Providing permanent surveying monuments
- Providing and maintaining erosion and sediment control features
- Preparing as-built drawings and documentation.

# 2.0 SITE 1 - OLD LANDFILL AREA

## 2.1 SUMMARY OF REMOVAL ACTION

Field operations at Site 1 (Figure 1-1) were performed between June 1994 and March 1996.

#### 2..1.1 Clearing and Grubbing

Clearing and grubbing was performed by Eastern States Construction, Inc., an OHM subcontractor, in areas designated for the future landfill cap, stormwater and erosion control features, access road, and borrow pits. Due to pending erosion control design approval from MDE - Water Management Administration at the start of field operations, authorization was initially given for clearing operations only. Clearing began at Site 1 on 28 July 1994. Grubbing of stumps and roots was initiated upon receipt of an MDE erosion control permit. Clearing and grubbing was completed on 27 October 1994.

To gain access to the northwest excavation area, additional clearing and grubbing was performed by OHM beginning on 22 November 1994 and proceeded as necessary until 10 March 1995.

Commercial grade timber was transported off-site. Other timber was ground into wood chips, and composted to generate topsoil for subsequent use on the landfill cap. Stumps were coarsely ground and staged on the drill field east of the landfill area. During May 1995, Crouse Construction, Inc., (Crouse) an OHM subcontractor located in Aberdeen Maryland, ground all remaining vegetative debris, including the coarsely ground stumps remaining from the first phase of clearing, and provided transportation of the resulting wood chips to an off-site recycling facility owned and operated by Crouse.

The final limits of clearing and grubbing are indicated on Sheet AB-105.

#### 2.1.2 Demolition/Closure Actions

Between 12 October and 16 October 1994, a small building, located adjacent to and southeast of the Old Landfill, was demolished and a nearby section of an abandoned potable water main was removed and the open ends of the main were grouted.

On 25 October 1994, NFE, Inc. (NFE), an OHM subcontractor, properly abandoned monitoring well 1-GW-2 by removing 34.7 feet of casing and sealing the well with Portland cement. MDE - Waste Management Administration required that well 1-GW-2 be abandoned prior to excavation of landfill material in the area of the well. NFE forwarded a Well Abandonment Report to the MDE - Water Management Administration and the Cecil County Health Department following abandonment of 1-GW-2. A copy of the report is provided in Appendix A.

During excavation activities in the on-site borrow pits, OHM uncovered and removed six steel USTs. All six USTs were apparently used to store fuel oil for heating buildings which had been previously demolished by the Navy. The approximate locations of the six USTs are indicated on Sheet AB-101.

The first four USTs (two 2,000-gallon and two 6,000-gallon capacity tanks) were found south of the existing access road during October 1994. Reißneider Transportation, Inc., an OHM subcontractor, removed approximately 19,500 gallons of oil and water from the four USTs. The liquid was disposed of at International Petroleum Corporation of Delaware located in Wilmington, Delaware.



The fifth UST, having a capacity of 6,000 gallons, was discovered on 8 February 1995 during excavation of landfill material from outside of the cap limits at a location near the entrance to the Old Landfill Area, approximately 5 feet north of the access road. The sixth UST, with a capacity of 6,000 gallons, was uncovered in June 1995 during the installation of a stormwater diversion line west of the "H-Building." Reifsneider Transportation, Inc., removed all pumpable liquids from the two remaining USTs. The liquids were disposed of at International Petroleum Corporation of Delaware.

The first four USTs and the surrounding soils were inspected on 2 March 1995 by Messrs. Maurice Dix and Michael Frank, environmental inspectors with the MDE Oil Control Program. The fifth UST and surrounding soils were inspected by Mr. Frank on 3 April 1995. The sixth UST was inspected by MDE at the time of its removal in June 1995. Based on field screening instrument and visual inspections of the resulting UST excavations, both Messrs. M. Dix and M. Frank indicated that soil sampling and analysis would not be required.

OHM removed any remaining sludges and solids, cleaned the interior of all tanks using sorbent pads, and then transferred the cleaned tanks to International Crane, Inc. for scrap recycling. Prior to transfer to International Crane, Inc., all six tanks were disabled by creating a large hole in each tank to access the interior for cleaning.

The sludges, solids, and cleaning materials were placed in thirty-eight 55-gallon steel drums, which were staged on site pending sampling and laboratory characterization. On 17 August 1995, Clean Harbors of Baltimore, Inc., an OHM subcontractor, removed the drums from the site, bulked the contents, and transported the material to Modern Landfill, located in York, Pennsylvania, a licensed non-hazardous solid waste disposal facility.

#### 2.1.3 Erosion and Sedimentation Controls

MDE - Water Management Administration provided preliminary approval in July 1994 for the installation of temporary erosion and sediment controls and for clearing of vegetation at the Old Landfill. Following submission and approval of erosion control design drawings, MDE - Water Management Administration issued a permit on 9 November 1994 authorizing construction of additional erosion control features. Following inspection and acceptance of the erosion controls by the MDE - Water Management Administration, authorization was provided to begin grubbing of stumps and roots.

Erosion controls consisted of both temporary and permanent measures. Temporary erosion controls included installation of perimeter berms and silt fence. The perimeter berms were seeded and covered with Futura erosion control matting, and rip rap check dams and weirs were constructed at designated intervals along the length of the perimeter berm. Silt fence was initially installed at the limits of disturbance; however, additional silt fence was installed up until August 1995 throughout the Old Landfill Area to address potential erosion pending complete maturity of the vegetative cover. Permanent erosion controls include construction of rip rap lined swales, stormwater diversion pipe, and Sediment Trap Nos. 1 and No. 2 at the locations indicated on Sheet AB-105.

Concurrent with a modification approved by the MDE - Water Management Administration allowing anchor trench stormwater runoff to discharge into restored wetland areas, approval was given by MDE (EFA-Chesapeake memorandum dated 7 April 1995) to delete the future stormwater basin proposed for the area occupied by Sediment Trap No. 2. As a condition of the stormwater basin deletion, MDE directed that



Sediment Trap No. 2 be made a permanent feature. To accomplish this directive, permanent improvements were made to Sediment Trap No. 2 as follows:

- Stabilization of the banks with grass seed and biodegradable erosion mat
- Removal of accumulated sediment from construction phase
- Debris removal and additional rip rap at the overflow swale
- Vegetative plantings to further stabilize the steep slope between the permanent access road and the sediment trap floor
- Construction of a curb composed of railroad ties along the adjacent roadway to minimize the possibility of sediment trap erosion due to storm events
- Construction of rip rap lined channels into the sediment trap beginning at breaks in the roadway curbing.

#### 2.1.4 Limits of Landfill Investigation

At the request of Mr. Ed Carlson of the MDE - Waste Management Administration, a test pit program was performed to investigate the limits of landfill material located beyond the future landfill cap. The primary test pit investigation was conducted between 14 July and 4 August 1994. Approximately 160 test pits were advanced during this period. The locations of the 160 test pits and the approximate limits of the landfill material removal action are shown on Sheet AB-101. Additional test pits were excavated as needed until February 1995 to assess the extent of landfill material within specific areas.

The largest volume of landfill material outside the future cap limits was encountered northwest of the cap. In this area, the landfill material was located between the future cap limits and Maryland Highway 276, and extended from the eastern limit of the active rubble landfill berm to the Maryland Highway 276 stormwater outfall. Smaller, localized quantities of landfill material were uncovered southwest and east of the future landfill cap. Following the subsurface investigation, the landfill material located outside the future cap was excavated and placed within the cap limits.

#### 2.1.5 Western Liquid Disposal Pits

Three shallow pits, located in the western section of the Old Landfill, were probably used prior to 1976 by the Navy to dispose of liquid waste, primarily petroleum products. Due to their characteristic shape, the three western liquid disposal pits were referred to as the "finger" pits. The approximate location of the western finger pits is shown on Sheet AB-101. The pits measured approximately 50 feet long and 15 feet wide and were generally oriented northwest to southeast. Black staining was visible at the surface of each pit, particularly the westernmost pit.

Based on analytical results for samples collected from the pits in October and November 1994, the pit material was characterized as non-hazardous. A composite sample, designated SPIT2, was collected on 7 November 1994 during the excavation of finger pit material and analyzed for total petroleum hydrocarbons (USEPA Method 418.1M). The concentration of petroleum hydrocarbons in sample SPIT2 measured 193,000 milligrams per kilogram (mg/kg). Additional details of sampling and analytical work are given in Volume 1.



Due to MDE - Waste Management Administration and Navy concerns regarding subsurface migration of finger pit contamination, Mr. Frank Zepka of EFA-Chesapeake provided verbal authorization on 21 September 1994 for the excavation, solidification, and relocation of finger pit material to the Old Landfill ravine. Solidification is the addition of other materials, such as Portland cement or quarry process, to excavated materials to improve material handling properties by eliminating free liquids. Written authorization was provided by EFA-Chesapeake for the finger pit material relocation on 14 October 1994.

OHM began solidification and excavation of finger pit material on 4 November 1994. Fine-grained quarry process material was used as a solidification agent during excavation of contaminated soils from the western finger pits. Steel 55-gallon drum and 5-gallon bucket carcasses were encountered during the finger pit excavation. Free liquid diminished with increasing depth of excavation. Due to a strong odor and a photoionization reading of 27 parts per million (ppm), personal protective equipment (PPE) was upgraded to Level B. Approximately 3,000 bank cubic yards of impacted soils were removed from the finger pit area and transferred to the Old Landfill ravine where it was overlain by clean daily cover and a temporary impermeable membrane. Placement of backfill in the resulting finger pit excavation was completed on 16 December 1994.

#### 2.1.6 Ravine Area

The ravine area, shown on Sheet AB-101, was centrally located within the Old Landfill, and served as an access route between the two Old Landfill sections during former Navy facility operations. The ravine was approximately 350 feet in length with a nominal width of approximately 100 feet. The ravine dropped approximately 20 feet in elevation from its origin near the center of the landfill to the point where it opened into the wetlands northwest of the Old Landfill.

EFA-Chesapeake, at the request of MDE - Waste Management Administration, directed that the most highly impacted materials be placed preferentially in the ravine. Concrete debris generated from the demolition of the firefighter training buildings and pad were used to create gravity check dams behind which impacted materials were placed in lifts and covered each day with clean fill. Materials placed in the ravine included:

- 24,000 bank cubic yards of solidified separator pit area sediment and oil sludges from Site 2
- 750 bank cubic yards of solidified pesticide-impacted sediment from Site 2
- 3.000 bank cubic yards of solidified finger pit material from Site 1
- 2,200 loose cubic yards of concrete demolition debris from Site 2.

Approximately 27,000 bank cubic yards of impacted materials were placed in or adjacent to the Old Landfill ravine. Once the ravine reached capacity, the high-density polyethylene (HDPE) liner from the Site 2 ModuTank was placed over the ravine area. The liner served as a temporary impervious cover over the ravine area until the landfill cap geosynthetics could be installed during the following spring of 1995.

#### 2.1.7 Soil Borrow Pits

At the request of EFA-Chesapeake, on-site borrow sources were investigated and subsequently developed by OHM to provide select fill for construction of the landfill cap. Borrow areas were established east of the Old Landfill Area and the main southern access road as shown on Sheet AB-105. In addition, borrow areas were later established at the location of the present upper stormwater retention basin and in the area beyond the eastern drainage.

Prior to development of the initial borrow pit located east of the access road, test pits were advanced throughout the area in order to assess depth to bedrock and to collect samples for physical property testing.



The geotechnical testing data for the samples collected in the borrow pit area is provided in Volume 1 of the Contractor Closeout Report.

MDE solid waste landfill construction requirements stipulated an overall thickness and maximum grain size for the final cover layer located between the landfill waste material and the cap geosynthetics. The MDE directed that the final cover layer will have a 2-foot minimum thickness, and the grain size of the final cover fill material will not exceed 1 inch in diameter. To meet the grain size requirement using the borrow pit material, OHM mobilized two screening plants equipped with screens sized to remove particles exceeding 1 inch in diameter.

As the main borrow pit became exhausted, other areas were evaluated for borrow potential. The area north of the main access road and immediately east of the landfill limit was developed until reaching bedrock. After investigating numerous locations throughout NTCB, the area beyond the eastern drainage was approved by EFA-Chesapeake for development as a borrow pit.

In December 1994, an off-site screened soil product referred to as fine mason sand was made available at competitive pricing by York Building Products Co. of Perryville, Maryland. After physical and chemical testing of the fine mason sand, and a comparison of the delivered price of the fine mason sand with the cost for on-site production of screened borrow, the Navy approved the importation of the fine mason sand for use in landfill cap construction. Production of on-site borrow was discontinued in December 1994, and delivery of the fine mason sand was begun on 27 December 1994.

#### 2.1.8 Excavation of Additional Landfill Materials

Based on the results of a subsurface investigation, discussed in Volume 1 of the Contractor Closeout Report, the approximate extent of landfill material located outside the proposed limits of the landfill cap was established. Landfill materials were primarily encountered northwest of the future landfill cap. Smaller quantities were found near Sediment Trap No. 2, southwest of the landfill, and near the eastern limit of the future cap. The locations of test pits advanced during the landfill material delineation and the subsequent landfill material removal limits are shown on Sheet AB-101.

Following clearing and grubbing, the area where landfill materials were anticipated, based on the subsurface investigation, was topographically surveyed by Taylor Wiseman & Taylor, Inc. (TWT), an OHM subcontractor. Upon completion of the survey, the landfill material located outside the cap limits was excavated and transferred onto the surface of the future landfill.

Northwest of the future landfill cap, landfill material was encountered extending from the cap limits to within approximately 15 feet of the shoulder of Maryland Highway 276. In this general area, landfill material extended approximately 50 feet east of the active rubble landfill sediment trap and as far west as the Maryland Highway 276 stormwater outlet. In addition, the rubble landfill sediment trap berm was found to consist of large quantities of landfill material. The landfill material generally consisted of glass, metal, wood, transite, porcelain, paper, fabric/clothing, plastic, and other miscellaneous debris.

To gain access to landfill material northwest of the future cap, active telephone poles and lines were relocated to the grass shoulder adjacent to Maryland Highway 276. Landfill material was encountered during installation of one pole. As requested by EFA-Chesapeake on 18 October 1994, OHM advanced test pits at the tree line along Maryland Highway 276. A few pieces of landfill material were encountered in the immediate vicinity of the utility pole. The pole was temporarily removed while the surrounding soil was excavated and replaced with clean fill.



Approximately 62,000 gallons of liquid that accumulated in the landfill material excavation, either as groundwater seepage or precipitation, was pumped by Reifsneider Transportation, Inc. into bulk liquid trailers for off-site disposal at the Valley Forge Sewage Authority, a publicly-owned treatment works (POTW) located in Phoenixville, Pennsylvania.

Upon completion of the landfill material removal action, the area was resurveyed by TWT to allow for a calculation of the approximate quantity of material removed. Based on the survey, approximately 20,800 bank cubic yards of landfill material were excavated and placed on the surface of the Old Landfill prior to capping. An additional quantity of 1,800 bank cubic yards was removed from the active rubble landfill sediment trap berm. The berm was rebuilt to original grade based on a TWT survey conducted prior to excavation of the berm.

Several thousand cubic yards of landfill material encountered in the area designated for Sediment Trap No. 2 were excavated and placed within the future landfill cap limits. As indicated in Sheet AB-101, several hundred cubic yards of primarily building debris were located in small isolated areas just beyond the eastern extent of the future landfill cap. The building debris was excavated and placed within the future cap limits.

## 2.1.9 Grading of Landfill Surface

Grading of the landfill surface was performed between October 1994 and April 1995. This task consisted primarily of placement and rough grading of landfill material excavated from outside the future landfill cap limits and impacted material excavated at Site 2. Approximately 30,000 bank cubic yards of existing soil and landfill material within the future cap limits were rough graded to obtain a more uniform surface and slope in conformance with design drawings. Additional material was acquired from both on-site and off-site borrow sources for attaining design grades below the final cover layer. On-site borrow was obtained from pits as described in Section 2.1.7. Off-site borrow was obtained from York Building Products Company, Inc. of Perryville, Maryland.

MDE - Waste Management Administration approved the use of all Site 1 landfill and Site 2 soil and debris for use as non-hazardous fill in the construction of the landfill cap at Site 1. The following quantities of landfill and impacted materials were placed within the limits of the future cap:

- 3,000 bank cubic yards of Site 1 finger pit material
- 20,800 bank cubic yards of landfill material located northwest of the Site 1 cap limits
- 1,800 bank cubic yards from the rubble landfill berm area
- 35,000 bank cubic yards of petroleum hydrocarbon impacted soil from Site 2
- 750 bank cubic yards of pesticide-impacted soil from Site 2
- 2,200 loose cubic yards of concrete debris from Site 2 shell building and concrete pad demolition.

Following rough grading of the landfill material, TWT surveyed the resulting surface for generation of an as-built topographic map. To expedite the placement of the final cover layer, topography of areas that were not disturbed during rough grading of the Old Landfill was obtained from an earlier TWT topographic survey of the Old Landfill surface, performed in September and October, 1994. The topography of the top of waste is shown on Sheet AB-102.

#### 2.1.10 Final Cover Layer

Based on communications with the MDE regarding solid waste facility requirements, the landfill cap design specified that a two-foot thick final cover layer composed of compacted material not exceeding 1 inch



in particle size would be constructed over landfill material and below the installed geosynthetics. The purpose of the final cover layer is to prevent landfill debris and rocks from damaging the geosynthetic materials.

The final cover layer was constructed between 30 January and 10 April 1995. Approximately 100,000 tons of fine mason sand, imported from York Building Products Company, Inc., were used during rough grading and in the construction of the final cover layer. The in-place, compacted volume of the final cover layer is approximately 44,850 cubic yards. The fine mason sand was pre-screened prior to delivery and, as a result, met MDE particle size requirements. The fine mason sand was placed in loose lifts measuring 8 to 12 inches and compacted using a 6½-ton static weight Ingersoll-Rand SD-100 vibratory roller. Compactions tests were performed by OHM on each lift using the test method for density of soil in place by nuclear methods (ASTM D2922) and the test method for water content of soil in place by nuclear methods (ASTM D3017) at a rate of one test per 5,000 square feet. The test method for density and unit weight of soil in place using the sand cone method (ASTM D1556) was used to calibrate the nuclear densometer density readings. Compaction test results are provided in Volume 1 of the Contractor Closeout Report. The revised final cover layer specification (Section 05100) is provided in Appendix B.

TWT provided grade control during final cover placement and monitored thickness by subtracting top of landfill material elevations from top of final cover elevations. Small test pits were advanced periodically to directly assess the thickness of the final cover layer. To expedite the placement of geosynthetics, the complete topography of the final cover layer was obtained during the survey of geomembrane panels. The minimal thicknesses of the geosynthetic gas vent layer and the geomembrane were disregarded for the purposes of the final cover layer topographic survey. The as-built topography of the final cover layer is shown on Sheet AB-103.

# 2.1.11 Landfill Cap

## 2.1.11.1 Anchor Trench

The anchor trench was constructed between 20 March and 11 May 1995. It was originally designed as a continuous non-drainage feature at the perimeter of the landfill cap. Drainage was to be conveyed over the anchor trench by a geocomposite and discharged into a swale which in turn discharged into a stormwater detention basin southwest of the landfill cap at the approximate location of Sediment Trap No. 2. Due to unacceptable permanent loss of wetlands, OHM redesigned the anchor trench to convey stormwater.

As discussed in a letter to Mr. Daniel O'Leary, P.E. of the MDE - Water Management Administration, concerns existed as to whether sufficient water inputs were available to the restored wetland areas north and northwest of the landfill cap. As a result, the design was further revised to redirect a portion of the anchor trench flow into the restored wetlands instead of the future stormwater basin. Approval was obtained from Mr. O'Leary to provide anchor trench discharge laterals into forested Wetland Cells "A" and "B" north of the landfill cap, and to terminate the anchor trench as it enters riparian terraces at two locations northwest of the cap.

Most of the anchor trench located south of the landfill and a section west of the landfill currently discharge into Sediment Trap No. 2. The balance of the anchor trench discharges into restored wetland areas northwest of the landfill cap. As documented in an EFA-Chesapeake memorandum dated 7 April 1995, MDE - Water Management Administration authorized the elimination of the stormwater detention basin and the use of Sediment Trap No. 2 as a permanent feature. The anchor trench layout north of the landfill cap was modified to eliminate small deflections toward the landfill and straighten the anchor trench, which slightly increased the area of the landfill cap. The as-built anchor trench configuration is indicated on Sheet AB-105.



Prior to excavating the anchor trench, ground surface elevations along the alignment of the future anchor trench were evaluated to determine if an anchor trench of constant depth would provide adequate slope for drainage. To obtain an acceptable trench slope, the final cover surface elevations over the trench were increased slightly near the beginning of the anchor trench at the southeast perimeter of the landfill cap. The anchor trench was then excavated at a constant depth of 3 feet along its entire length.

The landfill cap geosynthetics, consisting of the gas vent geocomposite, the HDPE geomembrane, and the drainage net geocomposite, were extended into the anchor trench in an L-shaped configuration between anchor trench stations 0+00 and 24+00 (Sheet AB-105). This configuration allowed for geomembrane coverage of the interior anchor trench sidewall, anchor trench floor, and approximately 12 inches above the toe of the outer anchor trench sidewall. Between anchor trench stations 24+00 and 31+57, the landfill cap geomembrane was installed in a U-shaped configuration due to steep slopes in the western drainage area adjacent to the anchor trench.

Non-woven geotextile was placed over the floor and outer sidewall of the entire length of anchor trench to protect the geomembrane and to minimize clogging of anchor trench drainage media with surrounding soil. Once the pipe was installed and the trench was filled with 3/4-inch crushed stone, the geotextile was folded over the trench, and 4 to 6 inches of stone were placed on top of the geotextile to secure its placement. The barrier layer was subsequently tapered over the anchor trench during grading, and approximately 6 inches of vegetative layer was also placed over the anchor trench. The vegetative layer over the anchor trench was subsequently seeded, and fertilizer and lime were applied at the same time.

Perforated corrugated HDPE pipe of 4-, 6-, and 8-inch-diameter was used during anchor trench construction. Approximately 3,170 linear feet of HDPE pipe and 800 compacted cubic yards of AASHTO No. 5 stone were installed in the anchor trench. Pipe sizing in the anchor trench was based on hydrologic calculations for stormwater runoff from the landfill cap. The calculations were provided to Mr. O'Leary, P.E. of the MDE - Water Management Administration on 2 November 1994. The anchor trench as-built detail is shown on Sheet AB-109.

## 2.1.11.2 Gas Vent Risers

The gas vent risers were installed between 13 March and 19 May 1995. They are part of a system designed to collect and release gas that may be generated under the landfill cap geosynthetics. The gas vent risers are set in sumps, which are lined with non-woven geotextile and filled with crushed stone. The sumps are 3 feet deep as measured from the top of the final cover layer. A total of 43 gas vent risers, designated G-1 through G-43, were installed within the cap limits. The gas vent risers were installed at the locations indicated on as-built Sheet AB-105. The risers were constructed as shown in the as-built detail on Sheet AB-109. The revised specification for the gas vent system (Section 05300) is provided in Appendix B. Solmax Geosynthetics, Inc. (Solmax), the OHM geosynthetics installation subcontractor, subsequently installed the gas vent riser boot, which was designed to accommodate landfill settlement. Upon installation, each U-shaped polyvinyl chloride (PVC) vent pipe was marked with its corresponding numerical designation.

#### 2.1.11.3 Gas Vent Geocomposite

The gas vent geocomposite (650,000 square feet) was installed by Solmax between 20 March and 1 May 1995. The purpose of the gas vent geocomposite is to channel emissions from landfill material decomposition to the gas vent riser sumps, where the gas will enter a slotted PVC well screen and will be released into the atmosphere. The gas vent geocomposite was placed between the final cover layer and the cap geomembrane. The geocomposite was composed of 6-ounce-per-square-yard, non-woven geotextile (Trevira 1120) and HDPE geonet (Poly-Net). On slopes steeper than 5:1, the geotextile was bonded to both sides of



the geonet to increase the angle of interface friction in combination with textured geomembrane also used on slopes steeper than 5:1. On less steep slopes, the geotextile was bonded only to the underside of the geonet, which was then overlain by smooth geomembrane. The geocomposite panels were joined by plastic slip fasteners.

I-Corp International, Inc. (I-Corp), an OHM subcontractor, provided third-party, independent quality assurance for delivered materials and their installation. QC and conformance certificates, and associated material data are provided in the appendices to Volume 1 of the Contractor Closeout Report.

#### 2.1.11.4 Geomembrane

The geomembrane was installed by Solmax between 20 March and 1 May 1995 immediately following the installation of the gas vent geocomposite. The geomembrane was placed between the gas vent geocomposite and the drainage layer geocomposite over an area of approximately 650,000 square feet. Seams between panels were made by a polymer fusion process using a double hot wedge. This process created an air channel between two parallel seams which was subsequently used to pressure test the seam integrity. The geomembrane used on slopes less steep then 5:1 was composed of 40-mil, smooth HDPE (600,000 square feet). On slopes steeper than 5:1, textured 40-mil HDPE geomembrane (50,000 square feet) was installed to increase the interface angle of friction.

I-Corp provided quality assurance for delivered materials and their installation. QC and conformance certificates, and associated material data are provided in the appendices to Volume 1 of the Contractor Closeout Report. The material warranty provided by the manufacturer, National Seal Corporation, and the installation warranty provided by Solmax are included in Appendix C. The geomembrane panel layout is provided on Sheet AB-106.

Between 13 November to 14 December 1995, OHM remobilized to NTCB to perform erosion repairs as a result of two damaging rain storms in late October 1995. OHM installed a downchute and laterals at the northwest cap slope as part of the erosion repair scope of work. Installation of the downchute required removal of all the slumped soil materials from the surface of the cap geosynthetics so that the barrier soil and topsoil layers could be restored to their original condition. The soil that was excavated from the surface of the geosynthetics was hauled to the borrow area, graded, and hydroseeded. During removal of the soils, the JD690 excavator put a 12-inch-long tear in the drainage net and geomembrane. Solmax Geosynthetics mobilized a two-man crew to repair the geomembrane and the drainage net. A geomembrane patch was extrusion welded over the tear in the geomembrane and the patch was successfully vacuum tested. A drainage net patch was installed and connected with plastic tie straps. The cap soils were restored and construction of the downchute was completed as described in Section 2.1.14. A qualified OHM engineer performed the inspection of the geosynthetic repair. Photographs were taken to document the repair.

# 2.1.11.5 Drainage Geocomposite

The drainage geocomposite (650,000 square feet) was installed by Solmax between 20 March and 1 May 1995. The purpose of the drainage geocomposite is to improve the hydrologic transmissivity of the barrier soil layer overlying the geosynthetics. Stormwater infiltration is conveyed by the drainage geocomposite to the anchor trench where it is directed into wetland areas and sediment traps. The drainage geocomposite was installed between the geomembrane and the overlying barrier soil layer. The geocomposite was composed of Trevira 1120 and Poly-Net. On slopes steeper than 5:1, the geotextile was bonded to both sides of the geonet to increase the angle of interface friction. On less steep slopes, the geotextile was bonded only to the underside of the geonet, which was then overlain by smooth geomembrane. The geocomposite panels were joined by plastic slip fasteners.



I Corp provided quality assurance for delivered materials and their installation. QC and conformance certificates, and associated material data are provided in the appendices to Volume 1 of the Contractor Closeout Report.

# 2.1.11.6 Barrier Soil Layer

The barrier soil layer was placed between 27 March and 5 May 1995. The purpose of the barrier soil layer is to minimize the effects of frost heave on the geosynthetics and to protect the geosynthetics from physical damage.

Approximately 60,000 tons of utility sand (fine silty sand), imported from York Building Products Company, Inc., were used in the construction of the barrier soil layer. The in-place volume of the barrier soil layer is approximately 33,400 cubic yards. The revised barrier soil layer specification (Section 05100) is provided in Appendix B. The utility sand was pre-screened prior to delivery and, as a result, met all particle size requirements. The utility sand was hauled in Cat D25C off-road dump trucks and placed as uncontrolled fill using medium low ground pressure dozers and track front-end loaders with only the tracking of equipment for compaction. Rollers were not used for compaction of the barrier soil layer.

TWT assisted with grade control during barrier soil layer placement and subsequently provided a final topographic map of the top of the barrier soil layer as an as-built record. The objective of the grade control was to provide a soil barrier layer with a minimum thickness of 18 inches. The as-built topography of the barrier soil layer is shown on Sheet AB-104.

# 2.1.11.7 Topsoil Layer

The topsoil layer was placed between 3 May and 16 May 1995. The purpose of the topsoil layer is to provide a growth medium with organic content and soil chemistry sufficient for the establishment of a vegetative cover within the landfill cap limits.

The topsoil was produced on site using screened borrow and compost created from wood chips and leaf compost. The blending of the compost materials was performed between 19 December and 21 December 1994. Composting took place between 22 December 1994 and May 1995. Mixing of screened borrow and the compost, based approximately on four parts screened borrow to one part compost, was performed during May 1995. The topsoil mixture is described in the revised Turf specification (Section 02930) provided in Appendix B. Approximately 12,000 loose cubic yards of topsoil was produced following mixing. The topsoil, which was spread on the landfill using LGP CAT D-4 dozers, measured approximately 11,100 in-place cubic yards.

Grade control during spreading and placement of the topsoil layer was provided by OHM. TWT subsequently provided a final topographic map of the top of the vegetative/topsoil layer as an as-built record. The objective of the grade control was to provide a topsoil layer approximately 6 inches in thickness. The as-built topography for the vegetative/topsoil layer is provided as Sheet AB-105. Sections of the pre- and post-construction landfill surface are provided on Sheet AB-108.

## 2.1.11.8 Seeding

Hydrosceding of the slope adjacent to Maryland Highway 276 was performed by Harford Hydroseeding, Inc. of Forest Hill, Maryland on 31 March 1995. The hydroseeding mixture consisted of tall fescue and annual rye. Harford Hydroseeding, Inc. hydroseeded approximately 2 acres.



Hydroseeding of the landfill topsoil layer and remaining disturbed areas surrounding the landfill cap was initially performed between 16 May and 25 May 1995 by M.E.T. Limited, Inc. (M.E.T.) of Hunt Valley, Maryland. M.E.T. hydroseeded approximately 35 acres. Hydroseeding was performed in conformance with the revised Turf specification (Section 02930). It should be noted that a significant precipitation event on 25 May 1995 appeared to have a significant impact on the overall effectiveness of the initial landfill cap hydroseeding (refer to Section 2.1.14).

#### 2.1.12 General Site Restoration

#### 2.1.12.1 Permanent Roads

A permanent access road was constructed along the southern and western perimeter of the landfill cap. Construction of the road started in May 1995 and extensions to the road along the western perimeter of the landfill cap were completed on 24 August 1995. The permanent access road was constructed by excavating a 12-inch-deep and 10-foot-wide slot along the road alignment. Non-woven geotextile was placed on the excavated surface overlain by approximately 6 inches of 1 to 2-inch-diameter stone overlain by approximately 6 inches of crusher run. Recycled concrete dust (RC-6) was used in place of crusher run along portions of the permanent access road. The road surface was then heavily compacted with a smooth drum roller. The as-built location of the road is indicated on Sheet AB-105.

On 13 November 1995, OHM remobilized the NTCB site to repair erosion damage associated with two major storm events on 21 and 28 October 1995. Extending the permanent access road completely around the perimeter toe of the landfill cap was part of the scope of work during the fall remobilization. The new access road construction occurred at the north and east sides of the landfill. Construction of the permanent access roads consisted of stripping the existing vegetative layer, placing a layer of 8-ounce, non-woven geotextile and placing and compacting a 6-inch lift of No. 57 stone to a width of approximately 12 feet. Some areas of access road construction were wet and, therefore, provided poor conditions for access road construction. OHM installed geogrid throughout these areas to help stabilize the road. OHM installed the geogrid over the 8-ounce, non-woven geotextile and then the 6-inch layer of No. 57 stone was placed and compacted over the geogrid. Work was completed and OHM demobilized on 14 December 1995.

#### 2.1.12.2 Fences and Gate

A chain barrier attached to two posts was installed across the permanent access road entrance at the eastern limit of the landfill area. In addition, a gate was installed across the access road at the southern entrance to the landfill area. The locations of the two gates are indicated on Sheet AB-105.

The chain-link fence was installed by Fenner Fence Company, an OHM subcontractor, along Maryland Highway 276 to replace the section of fence removed by OHM to allow excavation of landfill material. The new fence crosses the western drainage near its southern limit and proceeds northward, generally parallel to Maryland Highway 276. Metal barrier extensions to the chain-link fence were installed both in the stream bed at the western drainage and at the Maryland Highway 276 stormwater outlet. A chain-link gate was installed near the northern limit of the new fence to provide access into the rubble landfill sediment trap area. The location of the new chain-link fence and gate are indicated on Sheet AB-105.

# 2.1.12.3 Signs

A sign indicating "Restricted Area - Do Not Enter" was fabricated and secured to a post installed on the restored slope adjacent to Maryland Highway 276. In addition, restricted access signs were attached to the



chain barrier at the eastern access to the landfill area and to the gate installed at the southern access to the landfill area.

## 2.1.12.4 Borrow Pit Areas

The disturbed borrow pit areas were graded to safe slopes and hydroseeded at the conclusion of landfill construction activities. Borrow pit hydroseeding was performed by M.E.T. in accordance with revised specifications, between 16 May and 25 May 1995. During August 1995, sediment accumulation in the plunge pool below the rubble landfill sediment trap was removed and spread in low areas in the borrow pit area south of the main access road. The sediment was then seeded and stabilized with erosion matting. During the November 1995 remobilization, soil excavated from the northwest corner of the site (from channel construction, downchute construction, and access road construction) was placed in the borrow areas, graded, and hydroseeded by M.E.T. The final topography of the borrow pit areas is shown on Sheet AB-105.

# 2.1.13 Wetland and Ancillary Drainage Restoration

Following removal of landfill material north of the landfill proper, EFA-Chesapeake provided authorization for the restoration of both forested (PF01A) and emergent wetlands in the former northern drainage areas. Restoration of approximately 29,000 square feet of forested wetland was required by MD DNR. In response to this requirement, a wetland and ancillary drainage system was designed by OHM with ecological and hydrological consultation provided by Environmental Quality Resources, Inc. (EQR), an OHM wetland restoration subcontractor. OHM prepared detailed water balance calculations for estimating quantities of stormwater to be conveyed through the restored wetlands and ancillary drainage swales. Based on available area and the hydrologic calculations, the area between the landfill cap constructed by OHM and the rubble landfill was selected for restoration of the forested wetlands.

The as-built topography of the restored forested wetlands and ancillary drainage is provided on Sheet AB-107. Sheet AB-107 includes a profile of the restored area. The profile begins at the upper stormwater retention basin and concludes at the final check dam near the Route 276 stormwater outfall.

During the November 1995 remobilization, OHM extended the 24-inch-diameter corrugated HDPE pipe to the bottom of the upper retention basin. Originally, the pipe discharged into a rip rap lined swale that directed water to the bottom of the retention basin. High stormwater flows discharging through the original 24-inch-diameter pipe caused disturbance of the rip rap lined swale. To mitigate this problem, OHM extended the pipe to the bottom of the retention basin by 50 linear feet and installed a flared-end section and a rip rap apron at the end of the pipe. The newly installed pipe was backfilled with a trapezoidal-shaped soil berm and then the berm was hand seeded and protected with erosion control matting. The as-built location of the newly installed 24-inch-diameter HDPE pipe at the upper retention basin is shown on Sheet AB-105.

#### 2.1.13.1 Stormwater Control Features

A reinforced concrete manhole was installed under an asphalt road located between the drill field and the Old Landfill. Stormwater entering the manhole from the drill field is split in two directions. A portion of the flow is diverted into a 24-inch-diameter corrugated HDPE pipe which discharges into the drainage located south of the borrow pit and the limits of disturbance. A U-shaped energy dissipator constructed using gabion baskets has been installed at the discharge end of the 24-inch HDPE pipe.

The balance of flow through the manhole structure discharges into the upper stormwater retention basin which in turn discharges into a second retention basin before being released into the restored wetlands. The stormwater retention basins were constructed above the wetland restoration area, northeast of the landfill



cap, to reduce the magnitude of stormwater flows through the northern drainage and to allow a regulated discharge into the restored wetlands over a longer period of time.

Additional stormwater enters the upper stormwater retention basin through a second 24-inch-diameter HDPE diversion pipe which begins at the northwest corner of the drill field near the H-shaped building and continues in a southwest direction into the upper retention basin. Stormwater from the upper stormwater retention basin normally flows into a lower stormwater retention basin through an outlet structure consisting of an 6-inch-diameter PVC outlet pipe surrounded by a 36-inch-diameter slotted corrugated metal pipe (CMP) and 8- to 12-inch-diameter rip rap. A rip rap lined spillway is located between the upper and lower retention basins to accommodate high flows.

To regulate stormwater flow from the lower retention basin, a bituminous-coated corrugated metal pipe (BCCMP) outlet structure with a single 8-inch-diameter stub opening was installed. A perforated 8-inch-diameter HDPE pipe lateral is connected to the stub on the BCCMP structure and extends across the floor of the lower retention basin. High water levels in the lower retention basin discharge as follows: first through the 8-inch-diameter lateral, second through slots located near the top of the vertical 36-inch BCCMP outlet structure, and then over the top of the BCCMP outlet structure, which is protected by a trash rack. Stormwater flows not handled by the BCCMP outlet structure are addressed by a rip rap lined emergency spillway.

Flows through the BCCMP outlet structure discharge into a 3-foot-deep plunge pool. The plunge pool was designed to allow for greater surface dispersion and infiltration of stormwater into the restored wetland cells located downgradient of the retention basins. The restored forested wetlands consist of two low gradient cells designated Wetland Cells A and B. Wetland Cell A is located approximately 8 feet in elevation above Wetland Cell B. A rip rap lined swale conveys stormwater overflow from Wetland Cell A to Wetland Cell B.

Small storm events drain into the restored wetland cells from the lower retention basin. Major storm events discharge into both the restored wetland cells and the parallel emergency spillway located between the wetland cells and the landfill cap. Both the restored wetland cells and the emergency spillway drain into a riparian terrace area, where a rip rap lined low flow channel has been constructed to convey stormwater flows and minimize erosion during storm events.

The anchor trench along the northern perimeter of the landfill cap terminates in the riparian terrace area. At the anchor trench terminus, stormwater flows are conveyed through a pipe lateral to the low flow channel in the riparian terrace.

A 36-inch-diameter reinforced concrete pipe (RCP), located along the south shoulder of Maryland Highway 276, discharges onto a steep slope above the riparian terrace area. To minimize erosion, OHM lined the slope with 12-inch- to 18-inch-diameter rip rap and concrete block. The stabilized slope meets the rip rap lined low flow channel located on the floor of the riparian terrace.

The as-built locations of new stormwater control features are shown on Sheet AB-105. As-built details of stormwater outlet structures and related features are provided on Sheet AB-110.

#### 2.1.13.2 Earthwork

Prior to initiating earthwork for the restored wetlands, TWT determined the approximate limits of each cell. The final elevation of the two wetland cells was established based on surrounding topography and to provide sufficient area for an emergency spillway between the forested wetland cells and the landfill anchor trench.



The two forested wetland cells were designed to have minimal slope from east to west at completion. Since the designated restoration area contained a significant slope, a cut-to-fill situation was necessary. Spoils from the Wetland Mitigation Area were also used to meet finished elevation. The wetland cell profile required construction of a 4-inch-thick low permeability layer overlain by an 32-inch-thick growth medium for the wetland plantings. Low permeability soils (clay) were imported from Stancills, Inc., an off-site borrow source. The clay was spread to an approximately uniform 6-inch loose thickness and compacted using a 6½-ton static weight smooth drum roller. The borrow for the vegetative layer was obtained from the stripping of topsoil in the borrow pit south of the southern drainage area. The material for the vegetative layer was spread to an approximate 32-inch thickness using grade control provided by TWT. The vegetative layer was not compacted by a roller during or following placement.

A geotextile and rip rap lined overflow swale was constructed at the stepdown between wetland cells. The overflow swale begins at the same elevation as the wetland cell floor to minimize ponding within cells and oversaturation of wetland soils. Low 1-foot-high berms were constructed along the two sides of each cell to contain stormwater sheet flow. The clay liner in each cell was placed on the interior slope of the perimeter berm to enhance stormwater containment.

The riparian terraces were graded with a series of elevation drops to allow construction of more level areas. The levels areas are intended to provide retention of soil moisture for propagation of trees and grasses. HDPE pipe, geotextile, and rip rap were used to stabilize soils at elevation drops within the riparian terrace area.

#### 2.1.13.3 Wetland Planting

Ecological restoration was conducted in the northern drainage located between the landfill cap and the rubble landfill to the north. Restoration activities, in general, included grading of the drainage system, installation of stormwater management features, seeding and ground stabilization, and planting of trees.

Two stormwater retention basins were constructed to capture runoff, to provide pretreatment, stabilize the watershed, and provide a more sustained "base" flow and hydrology for two terraced wetland cells that transition into a constructed riparian terrace area and an existing forested stream channel.

EQR performed stabilization and planting at forested Wetland Cells A and B, the riparian terrace area, and the west cap bank and stream channel below the confluence of the Route 276 storm drain.

The lower stormwater retention basin was treated with a pre-germinated seed mix of 60 percent K31 tall fescue, 20 percent redtop, and 20 percent annual rye at a rate of 50 pounds per acre. High velocity erosion matting was stapled along the steep slope of the basin.

The forested Wetland Cells A and B were shot with pregerminated hydroseed using 15 percent red fescue, 15 percent redtop, 15 percent annual rye, 20 percent switchgrass, 15 percent smooth brome grass, and 20 percent deertongue at 35 pounds per acre. Immediately following seed application, Wetland Cells A and B were covered with a stapled erosion matting. A total of 275 trees (3-gallon stock) were planted throughout Wetland Cells A and B as follows: 45 sycamore, 40 green ash, 33 serviceberry, 47 arrowwood, 45 river birch, 25 silky dogwood, and 40 red maple. The wetland planting survival warranty, provided by EQR, is included in Appendix C.



#### 2.1.13.4 Riparian Terrace Planting

The riparian terrace areas were stabilized with a rye-fescue and reed-canary grass mix and placed in a straw cover. A total of 75 trees (3-gallon container size) were planted as follows: 25 red maple, 25 green ash, and 25 tulip poplar.

The transitional area of the stream included a series of check dams, seeding, matting, and the installation of a littoral fringe along the toe-of-slope of the landfill using 15 yellow flag, 10 lizards tail, and 72 pint containers of rice cutgrass. Fifty 1-gallon black willow trees were planted on the lower slope of the mat treatment.

#### 2.1.14 Storm Damage Repairs

Weather had a significant impact on the project in May 1995 causing some damage to installed work and led to a 3-month project extension. On May 25, 1995, a very intense storm of brief duration occurred at the project site and precipitated 2.6 inches of rain in 80 minutes beginning at approximately 1810 hours. OHM estimated the return frequency of this storm as 112 years for Bainbridge, Maryland based on data from the U.S. Weather Service Bureau.

This storm did not damage Site 2 or the Wetland Mitigation Area. However, it did cause damage to the Site 1 landfill cap in the form of severe erosion rills, and to the Site 1 wetland areas in the form of drainage swale failures and silt deposition. The timing of such a severe storm was unfortunate because Site 1 was only recently hydroseeded (some areas just the day of the storm) and it was particularly vulnerable to erosive damage due to the lack of mature vegetation cover.

During subsequent storm events in June and July 1995, the capacity of the anchor trench appeared to have been exceeded at specific locations as evidenced by erosion rills and excessive soil settlement beginning at the anchor trench. Modifications to the anchor trench were constructed at locations characterized by these features. In the anchor trench along the southern perimeter of the cap, an overflow discharge lateral was installed to allow a reduction of hydrostatic pressure in the trench. The lateral, which is composed of non-perforated flexible corrugated 6-inch-diameter HDPE drainage pipe, discharges into the drainage channel adjacent to the access road.

Anchor trench improvements at the western perimeter of the landfill cap, where the anchor trench discharges into the riparian terrace, include the raising and reconstruction of the buried anchor trench discharge apron in the riparian terrace, and the replacement of the existing sediment-choked 8-inch-diameter pipe with a double-barreled, 6-inch and 8-inch stacked piping configuration. The west side reconstruction started upgradient of the last cleanout and extended into the riparian terrace. In addition, T-shaped barrier layer drains composed of 4- and 6-inch-diameter perforated HDPE pipe were installed on the western slope of the landfill cap. The purpose of the drains is to reduce hydrostatic pressure in the barrier soil layer. The locations of the barrier layer drains are shown on Sheet AB-107.

Two additional damaging storm events occurred on 21 and 28 October 1995 which prompted the remobilization of November 13, 1995. The October storm events were between 3 inches and 4 inches each over several hours and caused substantial washouts on the cap slope at the northwest corner of the landfill. OHM repaired the washout by installing a network of lateral trenches that flow into a downchute. The centerline of the downchute was aligned with the center of the washout area and two lateral lines were installed on the west and east sides of the downchute.



The lateral lines were constructed by excavating four, 100-linear-foot-long trenches to the top of the cap drainage net. The lateral line trenches were excavated to have positive drainage to the downchute by following the contours of the landfill slope. The excavated material from the trenches was used on the downslope side of the trench for surface water diversion berm construction. The trenches were lined with 8-ounce, non-woven geotextile. The downslope wall and the bottom of the lateral trenches were lined with rolled roofing paper (90-pound) to prevent subsurface drainage from flowing perpendicularly through the trenches. A 3-inch-diameter corrugated perforated HDPE pipe was installed in the trench and then the trench was backfilled to grade with pea gravel.

The downchute was constructed by excavating a trunk-line trench to the top of the cap drainage net. The excavated material from the trench was hauled to the borrow area to the south of the landfill, graded, and hydroseeded. The trench was lined with 8-ounce, non-woven geotextile and the bottom of the trench was lined with rolled roofing paper (90-pound). Two 4-inch-diameter corrugated, perforated HDPE pipes were laid side by side in the trench bottom. The pipes were bedded with pea gravel to a depth of 2 inches above the pipe. A U-shaped rip rap channel was constructed over the pea gravel. The dual 4-inch pipes were terminated at the toe of the slope and discharged into a rip rap lined drainage channel that will carry water to the end of the lower riparian terrace. The rip rap lined channel was constructed to accept runoff from the existing rip rap drainage feature in the lower riparian terrace. The as-built location of the laterals, downchute, and surface water channel are shown on Sheet AB-107 and typical cross sections of the laterals and downchute are shown on Sheet AB-110. Installation of the downchute required removal of all the slumped soil materials from the surface of the geosynthetics so that the barrier soil and topsoil layers could be restored to their original condition. The soil that was excavated from the surface of the geosynthetics was hauled to the borrow area, graded, and hydroseeded. During removal of the soils, the JD690 excavator put a 12-inch-long tear in the geosynthetics. Solmax Geosynthetics, Inc. mobilized a two-man crew to repair the geomembrane and the drainage net. A geomembrane patch was extruded over the tear in the geomembrane and the patch was successfully vacuum tested. A drainage net patch was installed over the geomembrane. The cap soils were restored and construction of the downchute was completed as described above. OHM performed the inspection of the geosynthetic repair. Photographs were taken to document the repair.

Other work performed during the November 1995 remobilization included the following:

- OHM installed a 24-inch-diameter HDPE pipe to drain the lower plunge pool to the riparian terrace. The original rip rap lined spillway had experienced erosion due to high stormwater flows, so OHM installed the 24-inch pipe to provide long-term protection against erosion.
- OHM reinforced the existing rip rap buttress at the northwest toe of the landfill cap. Additionally, the buttress was extended to the east to parallel the newly installed access road and to provide further erosion control for the toe of the northern landfill cap. OHM also reinforced and extended the rip rap buttress on the western toe of the landfill cap.
- OHM installed telephone poles on the outside edge of the western access road to stabilize the
  edge of the access road, to curb surface water from flowing off of the edge of the access road
  and to provide a safety feature for site vehicles driving on the narrow western access road.
- Two areas of the western access road were experiencing persistent wet conditions. OHM
  excavated wide drainage swales perpendicular to the road to provide drainage for the seeping
  water off of the road. Each drainage swale was constructed with a rip rap lined discharge
  apron on the downslope side of the access road. Each drainage swale was lined with
  geotextile, and R-4 rip rap. The rip rap was covered with a 4-inch layer of No. 57 stone to



maintain the road's accessibility. All the newly installed features during the November 1995 remobilization are depicted on the as-built drawings.

• OHM performed site restoration throughout the site prior to demobilization. The restored areas included all areas of erosion repair and all areas disturbed as a result of performing the repair work. Additionally, any areas of the site that were exhibiting poor vegetative growth were hydroseeded by M.E.T.

During February 1996, additional improvements and repairs were required at Site 1 due to the sudden and complete melting of 2 to 3 feet of accumulated snowfall, caused by a warm front and rainfall event, estimated at 6 inches of precipitation over 24 hours.

The following work was performed at Site 1 by OHM during February and March of 1996:

- Trench drain at the toe of slope along the northwest landfill cap.
- Replacement of two 24-inch HDPE pipes, located in separate spillways in the riparian terrace area, with open spillways lined with 1- to 2-foot-diameter rip rap.
- Extension of the existing Site 1 crushed stone access road to the north side of the landfill cap in order to establish continuous access around the landfill cap perimeter.
- Installation of four additional T-shaped barrier layer drains on the northwest slope of the landfill cap, downslope of lateral trench drains which were constructed during November 1995.
- Placement of 6- to 10-inch-diameter rip rap on the northwest slope of the landfill cap as shown on Sheet AB-107 to provide additional slope stabilization.
- Construction of a trench drain along the northwest toe of slope of the landfill cap to direct subsurface drainage away from the cap.
- Repairs to damaged silt fence, and stabilization of disturbed areas with topsoil, seed, and
  erosion matting.
- Removal of accumulated non-hazardous sediment from the lower plunge pool and placement of the excavated material into the borrow pit east of the landfill cap.
- Extension of the 24-inch HDPE inlet pipe to the toe of the upper retention basin slope from its original terminus at the top of slope.

# 2.2 DESIGN AND FIELD MODIFICATIONS

# 2.2.1 Design Modifications

Design modifications by OHM were authorized by EFA-Chesapeake on numerous occasions to address changed conditions identified during wetland delineation, topographic survey activitics, landfill material delineation, and a value engineering review of the initial design. OHM prepared a removal action design modifications package which was submitted to MDE - Water Management Administration on 6 October 1994. OHM design modifications included the use of a geosynthetic composite in place of a granular gas vent



layer and the conversion of an anchor trench and perimeter drainage swale to a combined anchor/drainage trench in order to reduce the destruction of wetlands located north and northwest of the future landfill cap.

#### 2.2.2 Field Modifications

During a cap geosynthetics pre-construction meeting with subcontractors, Solmax proposed a modification to the installation of the geomembrane at the gas vent riser. The modification would replace the use of a single riser boot welded to the cap geomembrane. An exterior geomembrane boot would be clamped to the PVC riser pipe only, and a second interior geomembrane boot would be welded to the cap geomembrane at the toe of the interior boot. The exterior boot would not be attached to the interior boot. The use of exterior and interior boots would accommodate any landfill settlement at the gas vent riser. The cap geomembrane would be installed flush with the riser but would not be attached or secured to the riser to prevent damage to the liner in the event of settlement. The proposed modification was reviewed and approved by OHM and the Navy. The modification is reflected in the gas vent detail on Sheet AB-109.

In April 1995, Mr. O'Leary, P.E. of the MDE - Water Management Administration, after review of an OHM landfill stormwater drainage modification proposal, dated 10 March 1995, authorized the modification of the anchor trench design and the continued use of Sediment Trap No. 2 in place of a future stormwater basin. The anchor trench design modification consisted of the deletion of a section of anchor trench located at the northwest perimeter of the landfill cap. Portions of the anchor trench, north and west of the cap, would instead discharge stormwater runoff into restored wetlands to be constructed north and northwest of the landfill cap. The remainder of the anchor trench system would discharge into Sediment Trap No. 2. The anchor trench modification also allowed the installation of discharge laterals from the anchor trench into wetland cells under construction north of the landfill cap.

On May 31, 1995, OHM met with the Navy Technical Representative, Mr. Frank Zepka, to inspect storm damage resulting from the 25 May 1995 storm event and develop a course of action. It was determined that the erosion damage would be repaired and certain modifications to the stormwater routing facilities would be implemented to minimize the potential for similar damage in the future.

#### 2.3 SUMMARY OF LABORATORY AND FIELD TESTING

## 2.3.1 Investigative Sampling and Analysis

Investigative sampling and analysis were conducted at Site 1 to characterize landfill materials and liquids. Soil and sediment samples were collected at the following locations:

- Test pit TP-20 (gray sediment)
- Western finger pits (liquid disposal area)
- Northern finger pit (liquid disposal area)
- Rubble landfill sediment trap berm (dark colored sediment).

Two groundwater seeps, designated Seep A and Seep B, located near the perimeter of the landfill, were sampled on 12 August 1994 to characterize seep discharge prior to possible collection and off-site disposal. The samples were analyzed for a broad array of organic and inorganic parameters by an approved analytical testing laboratory parameters. On 15 June 1995, a third seep designated Seep B2, located near the riparian terrace downgradient of Seep B, was sampled and analyzed for a similar list of chemical parameters.

Methodologies and results for investigative sampling and analysis at Site 1 are presented in Volume 1 of the Contractor Closeout Report.



#### 2.3.2 Confirmation Sampling and Analysis

Confirmation soil sampling and analysis was conducted at Site 1 to assess the effectiveness of landfill material removal actions. A confirmation sampling and analysis plan, dated 10 March 1995, was provided to the MDE - Waste Management Administration for review and comment prior to implementation. The confirmation sampling was performed between 15 March and 20 March 1995.

One composite and one discrete sample were collected at the same time from each of six sub-areas established within the limits of landfill material removal. The composite samples were analyzed for the full Target Compound and Target Analyte Lists (TCL/TAL) except for volatile organic compounds. The discrete samples were analyzed for the full TCL/TAL. In addition, a discrete sample was collected from apparent coal clinkers observed near the ground surface northwest of the landfill cap. The coal clinker sample was analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals and TCLP semi-volatile organic compounds.

Methodologies and results for confirmation sampling and analysis at Site 1 are presented in Volume 1 of the Contractor Closeout Report.

# 2.3.3 Imported Material Sampling and Analysis

As required, samples were collected of earthen materials imported from off site for use in Site 1 construction activities. Samples were collected for the following imported materials:

- Leaf compost, known by the product name LeafGro
- Sand fill provided by York Building Products Company, Inc.
- Bank run fill provided by Cecil Sand & Gravel Co. Inc.
- Clay fill provided by Stancills, Inc.

All samples were analyzed for the full TCLP and polychlorinated biphenyls (PCBs; EPA Method 8080). The clay sample was also analyzed for Total Petroleum Hydrocarbons (TPH; EPA Methods 8015/8100) and Resource Conservation and Recovery Act (RCRA) Characteristics. All results were acceptable and the materials were imported for use on site. The results for imported material sampling and analysis are presented in Volume 1 of the Contractor Closeout Report.

#### 2.3.4 Disposal Sampling and Analysis

Materials requiring off-site disposal were sampled and delivered to the project testing laboratory for analysis. The analytical results were used to establish a waste profile for disposal facility acceptance. Waste materials at Site 1 included:

- Liquids generated during dewatering of northwest landfill material excavation
- PPE and chemically-impacted plastic sheeting
- Vegetative debris and wood chips from clearing and grubbing operations
- A total of 38 steel drums, each of 55-gallon capacity, containing primarily solids and oil sludges; some drums were generated during monitoring well activities and the remaining were created during UST cleaning operations.



A composite sample collected from the PPE roll-offs was analyzed for RCRA Characteristics, TPH (USEPA Method 418.1M), PCBs, and the full TCLP. A composite sample was collected from each of two vegetative debris stockpiles, one consisting of coarsely ground stumps and the other consisting of unground logs and stumps. The two composite samples from the vegetative debris stockpiles were analyzed for RCRA Characteristics, TPH (USEPA Methods 8015/8100), PCBs, and the full TCLP. Lastly, a composite sample was collected from the thirty-eight 55-gallon drums staged on the drill field adjacent to Site 1. The sample was analyzed for Total Organic Halogens (USEPA Method 9020), TPH (USEPA Method 418.1M), and BTEX (USEPA Method 8020). Waste characterization analytical results are presented in Volume 1 of the Contractor Closeout Report.

# 2.3.5 Construction Material Testing

Imported and on-site earthen materials were shipped to a geotechnical testing laboratory, FWA Geosciences, Inc. of Bel Air, Maryland, for physical property testing. The purpose of the physical property testing was to characterize construction materials, evaluate the suitability of material, and verify conformance with design specifications. Tests conducted on materials included:

- Grain Size Analysis (ASTM D422) with Hydrometer Analysis
- Atterberg Limits (ASTM D4318)
- Soil Classification (ASTM D2487)
- Direct Shear Test (ASTM D3080)
- Moisture-Density Relationship (ASTM D698).

In addition, various combinations of compost and on-site screened borrow were analyzed for various agronomic properties to evaluate the use of the mixture as topsoil in the vegetative layer. Agronomic testing was performed by Myers Analytical Laboratories, Inc.

The results of physical and agronomic property testing are presented in Volume 1 of the Contractor Closeout Report.

# 2.4 **QUALITY CONTROL REPORT**

# 2.4.1 Project Quality Control Program

The purpose of the QC program for this project was to ensure compliance with the contract specifications and drawings to the satisfaction of the Navy. The QC function for the on-site work for the remediation of the Old Landfill Area may be divided as follows:

- Sampling and Analysis
- Earthwork
- Geosynthetics Installation
- Wetlands Construction
- Submittal Register
- · Storm Repair.

#### 2.4.2 Sampling and Analysis

Analytical testing was performed in accordance with approved Field Sampling and Analysis Plans. Chain-of-custody forms were reviewed for accuracy and completeness.



#### 2.4.3 Earthwork

The extent of clearing and grubbing for Site 1 landfill cap, borrow pit, and wetlands was established by survey. Limits of the landfill cap were delineated using investigative test pits. These limits were monitored by grade stakes and survey. Non-hazardous wood materials removed during clearing were reused as mulch. Non-usable bulk materials were transported to a sanitary landfill accompanied with bills of lading. Excavated impacted soils from the Firefighter Training Area were transported to Site 1 for placement under the landfill cap. The on-site borrow pits at Site 1 were developed to provide screened earthen materials for the construction at Site 1. A 2-foot-thick final cover layer consisting of screened material with particle size of 1 inch or less was placed and compacted to a minimum 90 percent of the maximum dry density using standard effort (ASTM D698) prior to the geosynthetics installation. Grade control for the waste and final cover layers was performed by survey and grade stakes.

The implementation of the site QC Plan, with regard to earthwork, involved ensuring compliance with the project specifications and design drawings. Representative samples of imported final cover material were analyzed for chemical contamination. Density tests for proper compaction of the final cover layer were performed under the direction of the project engineer and conformance verified by QC. A 6-inch thick topsoil cover was placed to support vegetation. Topography of each cap layer was ascertained by survey and is included on the as-built drawings. Seed mixtures were inspected by QC for compliance with revised specifications. Certification of the seed mixture was reviewed and submitted to the Navy for approval. Hydroseeding activities were monitored and areas requiring additional coverage were identified for rework. Off-site disposal of materials and liquids was properly documented with manifests and/or bills of lading. Problems arose when the subcontractor traversed perpendicular to the cap as opposed to parallel as instructed by OHM. Subsequent rains caused erosion rills in these areas which then required repair.

# 2.4.4 Geosynthetics Installation

The geosynthetics installation included anchor trench piping, gas vent pipe risers, gas vent geocomposite, geomembrane, drainage geocomposite, barrier soil layer, topsoil layer, and cap seeding.

The implementation of the site QC Plan, with regard to the geosynthetics installation, involved ensuring compliance with the project specifications and work plan. All materials, including anchor trench piping, gas vent piping, geosynthetics, hydroseed mixture, and barrier layer soil, were inspected upon receipt at the site for compliance to the contract specifications and drawings. The geosynthetics material was receipt inspected to ensure each roll number was traceable to a material certification. A third-party inspector (I-Corp) was contracted by OHM to monitor installation of the geosynthetics. QC plans were submitted by I-Corp and the installer (Solmax) for review and approval by the site QC manager prior to installation activities.

Geosynthetics samples were sent to an independent laboratory retained by I-Corp for conformance testing. Destructive and non-destructive testing of the on-site geomembrane welding was performed by a Solmax QC specialist and monitored by I-Corp. The site QC manager monitored I-Corp and Solmax to ensure each were following their QC procedures. Additional destructive replicate samples of the seam welds were obtained and sent to an independent laboratory to confirm on-site destructive testing. Panel seam and repair welding locations were identified on layout drawings. Documentation contained on the panel layout drawing includes seam and repair weld locations, and geosynthetic material roll numbers. The I-Corp Geosynthetics Construction Quality Assurance Report, dated 29 June 1995, and the Solmax Report on Quality Control Procedures, dated June 1995, are provided as appendices to Volume 1 of the Contractor Closeout Report. Gas vent riser pipe locations were surveyed by TWT, and are indicated on the as-built drawings.



#### 2.4.5 Wetlands Construction

Prior to wetlands restoration, conceptual design plans were prepared and discussed with the Navy. EQR was retained to assist in design and construction.

The implementation of the site QC Plan, with regard to wetlands construction, involved documentation review and field verification of installed plant quantities, species, and spacing.

# 2.4.6 Submittal Register

The submittal register contained in the site QC Plan was reviewed in conjunction with the EFA-Chesapeake representative and the site QC manager. The submittal register was revised based on discussions with EFA-Chesapeake. All submittals including plans, test results, samples, certificates of compliance, and catalog data were reviewed by the site QC manager for specification compliance and forwarded to EFA-Chesapeake for approval and/or review. The three contract specifications written by OHM: Section 02930, Turf; Section 05100, Final Cover Layer/Barrier Soil Layer; and Section 05300, Gas Vent System were reviewed for submittal requirements. The revised specifications are provided in Appendix B. The submittal register was revised to reflect the updated specification requirements for submittal items. The submittal register was maintained by the site QC manager, updated on a monthly basis, and forwarded to EFA-Chesapeake for approval. The submittal register is provided in Appendix D.

### 2.4.7 Storm Repair

An intense storm resulted in significant damage to the site on May 25, 1995. A walk-through was performed on May 31, 1995, with the OHM project manager, OHM site superintendent, the OHM site QC manager, and representatives from EFA-Chesapeake and EQR. A punchlist was developed and a plan of action implemented for site completion. QC maintained the punchlist and verified completion on a daily basis by monitoring repair activities. Repairs were documented on the Daily Contractor Quality Control (CQC) Inspection Report upon completion.

A final walk-through was performed on June 14, 1995, with EFA-Chesapeake representatives, the OHM deputy program manager, OHM project manager, OHM site superintendent, and OHM site QC manager. The site was accepted with punchlist items for correction. The Navy prepared separate storm damage punchlists for use by OHM in performing repairs at Site 1. Storm damage repairs were performed by OHM during June, July, and August 1995.

# 3.0 SITE 2 - FIREFIGHTER TRAINING AREA

#### 3.1 SUMMARY OF REMOVAL ACTION

Field operations at Site 2 (Figure 1-1) were performed between July 1994 and August 1995.

# 3.1.1 Clearing and Grubbing

OHM performed the initial limited clearing of *Phragmites* in the separator pit floor and vegetation in the surrounding buffer area after receipt of an MD DNR Authorization to Proceed dated 20 July 1994.

MD DNR subsequently issued a Nontidal Wetlands and Waterways Permit, dated 21 September 1994, authorizing removal of hydrocarbon-impacted soils from the separator pit and the removal of pesticide-impacted soils from the forested wetland area. Based on this permit and limited erosion control approvals provided by MDE - Water Management Administration, Eastern States Construction, Inc., an OHM subcontractor, proceeded with clearing and grubbing in the separator pit area, performing the work between 1 October and 7 October 1994.

Clearing and grubbing in the Firefighter Training Area, including the adjacent pesticide-impacted wetland, was performed as needed by OHM during the course of the Site 2 removal action. Vegetative spoils were ground into wood chips, and composted with mulch and manure to generate topsoil for subsequent use on the Site 1 landfill cap. Stumps were coarsely ground and placed in a stockpile on the drill field northeast of Site 1.

During May 1995, Crouse ground all remaining vegetative debris and reground the coarsely-ground stumps, and transported the resulting wood chips to an off-site recycling facility owned and operated by Crouse.

The final limits of clearing and grubbing at Site 2 are indicated on Sheet AB-203.

#### 3.1.2 Erosion and Sedimentation Controls

MDE - Water Management Administration provided preliminary approval in July 1994 for the installation of temporary erosion and sediment controls and for clearing of vegetation. OHM installed and maintained erosion controls at Site 2 beginning in July 1994 and extending through to completion of remedial activities and vegetative stabilization in the spring of 1995.

Following submission and approval of erosion control design drawings, MDE issued a permit on 9 November 1994 authorizing construction with the addition of further erosion control features. Following inspection and acceptance of the erosion controls by the MDE, authorization was provided to begin grubbing of stumps and roots.

Erosion controls consisted of both temporary and permanent measures. Temporary erosion controls included installation of stormwater diversion berms across the firefighter training pad and silt fence in the separator pit area. Permanent erosion controls include construction of rip rap lined swales along the eastern limit of the firefighter training pad and as a drainage outlet from the separator pit into the Happy Valley Branch. In addition, stormwater runoff from a portion of the remediated pesticide-impacted wetlands was diverted into the separator pit to avoid ongoing erosion of an adjacent access road and the bank of the Happy Valley Branch.



Seeding and planting of vegetation was performed beginning in March 1995 and continuing through May 1995 upon completion of removal actions and restorative earthwork in each area at Site 2.

#### 3.1.3 Demolition/Closure Actions

Demolition of the firefighter training pad was performed as necessary between October and December 1994 to remove underlying soils impacted by releases of petroleum products. On 11 October 1994, EFA-Chesapeake authorized the demolition of the three concrete and masonry firefighter training buildings. Mr. William Schmidt of the MDE approved placement of debris resulting from the demolition of the three firefighter training buildings into the Site 1 landfill. By 14 October 1994, OHM had demolished the three training buildings and transferred the debris to Site 1 for placement in the finger pit excavation and the ravine area.

On 29 July 1994, Hardin-Huber, Inc., an OHM subcontractor, abandoned monitoring wells 2-GW-6, 2-GW-8, and 2-GW-9 by pumping bentonite/cement grout into each well to the surface using the tremie method and removing the well casing protectors. Water Well Abandonment-Sealing Report Forms were submitted to the MDE - Water Management Administration and the Cecil County Health Department for each well abandonment as required. Copies of the reports are provided in Appendix A.

# 3.1.4 Water Treatment

Beginning in September 1994, OHM proceeded with the installation and operation of a separator pit dewatering system. Centrifugal pumps were used to convey water from the separator pit to an on-site water treatment system consisting of: two 12,000-gallon pre-treatment pools, two bag filters, a sand filter, a carbon cell, six 12,000-gallon post-treatment pools, and a 1,000,000-gallon ModuTank for storage of water following receipt of acceptable analytical data. An as-built diagram of the system is provided as Figure 3-1. The system treated approximately 460,000 gallons, including standing water from the firefighter training buildings and two hundred forty 55-gallon drums of monitoring well purge water, prior to demobilization on 22 December 1994.

Treated water stored in the ModuTank was used for dust control in construction areas and on NTCB roadways. The conditional use of treated water for dust control was authorized by Mr. Jeffrey Rein of the MDE - Wastewater Discharge Permit Program in a letter dated 13 September 1994. The ModuTank was demobilized on 22 December 1994, and the 31,700-square-foot ModuTank HDPE liner and geotextile underliner were used in December 1994 to cover materials placed in the Site 1 ravine area. Water remaining in the ModuTank was transferred to two 50,000-gallon pools which were finally emptied through ongoing dust control and demobilized on 25 May 1995.

### 3.1.5 Excavation of Impacted Soils

Impacted soils were identified and excavated at Site 2 as follows:

- Approximately 24,000 bank cubic yards of petroleum hydrocarbon impacted soils from the separator pit, inflow/outflow swales, and the separator vault areas
- Approximately 750 bank cubic yards of pesticide-impacted soils from the forested wetland north of the separator pit
- Approximately 11,000 bank cubic yards of petroleum hydrocarbon impacted soils from below the firefighter training pad.



The limits of excavated soils at Site 2 are shown on Sheet AB-202. In addition, approximately 2,200 loose cubic yards of concrete and masonry debris resulting from the demolition of the three firefighter training buildings, two oil separator vaults, and sections of the firefighter training pad were placed under the landfill cap at Site 1.

### 3.1.5.1 Separator Pit Area

Excavation of petroleum-impacted soil and oil sludge was performed in the oil separator pit area between 30 September and 13 December 1994. The approximate limits of excavation in the separator pit area are indicated in Sheet AB-202. The separator pit area includes the pit floor, perimeter containment berm, and inflow and outflow swales.

Impacted soils were first removed from the separator pit floor and outflow swale to a depth of approximately 4 to 5 feet below original grade. To address excess water content and comply with MDE - Waste Management Administration requirements, excavated material was staged in a corner of the separator pit. The stockpiled material was solidified with a small amount of Portland cement. Quarry dust was later used in place of Portland cement. Solidified material was subjected to the Paint Filter Liquids Test (USEPA Method 9095) prior to loadout. Results of paint filter liquids testing are provided in Volume 1 of the Contractor Closeout Report. Upon passing the paint filter test, solidified material was loaded onto articulated off-road dump trucks for transport to the ravine area at Site 1.

Following excavation of the separator pit floor and outflow swale, additional petroleum-impacted soil was uncovered within and beyond the containment berm surrounding the separator pit. Petroleum-impacted berm soil was excavated and transported to Site 1 for placement in the ravine area.

As directed by EFA-Chesapeake, concrete oil/water separator vaults located approximately 40 feet south-southwest of Firefighter Training Building C were demolished, and both the resulting concrete debris and surrounding petroleum-impacted soils were removed and transported to Site 1 for placement under the landfill cap. Soils contaminated with petroleum hydrocarbons were excavated to soil clean-up goals for TPH or to competent bedrock, whichever was encountered first. Confirmation sampling results were used above the water table to determine the limits of excavation. Since collection of soil samples below the water table is not an accepted practice, contaminated soils extending below the water table were removed to competent bedrock without confirmation soil sampling.

### 3.1.5.2 Firefighter Training Pad Area

Based on field screening and laboratory testing, three areas were identified under the firefighter training pad that contained soils with TPH concentrations greater than 100 mg/kg. During excavation at sampling location F17, petroleum-impacted soils were uncovered adjacent to a former water main, which was connected to an inactive fire hydrant. Additional soil excavation uncovered straps and a "cradle" used to position an underground storage tank. At approximately this time, EFA-Chesapeake was able to locate a figure indicating the locations of eleven USTs that were removed under a previous Navy contract. At the direction of the MDE - Waste Management Administration and EFA-Chesapeake, OHM excavated each former UST location and removed petroleum-impacted soils. Confirmation samples of soil and, in one instance, groundwater were used to assess the effectiveness of the removal action at each location. Soil removal was discontinued when analytical results for all samples were below clean-up levels. All excavated soils were transported to Site 1 for placement under the landfill cap.



Removal of petroleum-impacted soils below the firefighter training pad was performed between 4 October 1994 and 16 January 1995. The approximate limits of each excavation in the Firefighter Training Area are indicated on Sheet AB-202.

# 3.1.5.3 Pesticide-Impacted Wetland

Pesticide-impacted soils were identified in the wooded wetland north of the separator pit during prior investigative sampling for the Remedial Investigation. These soils were excavated, solidified, and transported to Site 1 between 20 January and 5 February 1995. Based on investigative sampling, pesticide-impacted soils were found primarily in swales and depressions within the wetland.

Following the initial removal action, first phase confirmation sampling identified additional pesticide-impacted soils which required further excavation. The results of second phase confirmation sampling were all below cleanup action levels. Confirmation analysis was conducted for pesticides using USEPA Method 8080. Approximately 750 bank cubic yards of pesticide-impacted soil and sediment were excavated from the wooded wetland area during the two removal actions. All excavated material was solidified, subjected to paint filter testing, and, upon passing, transported to Site 1 for placement in the ravine area. The approximate limits of excavation are indicated on Sheet AB-202.

#### 3.1.6 General Site Restoration

#### 3.1.6.1 Disturbed Area Restoration

Several non-wetland areas at Site 2 were disturbed during removal actions and related site activities and, therefore, required site restoration. Restoration at Site 2 included placement of clean fill in excavations created by removal of petroleum and pesticide impacted soils. The type of fill was selected and placed to accommodate construction of wetlands and drainage features. Prior to fill placement, high visibility plastic grid was placed at the bottom of each excavated area as a marker indicating the limits of impacted soil removal. Imported borrow from York Building Products Company, Inc. and Cecil Sand & Gravel Co. Inc. as well as excavation spoils from the NTCB reservoir Wetland Mitigation Area were used for backfill. As-built topography following placement of backfill is shown on Sheet AB-203. As-built sections and details of the separator pit area restoration are provided on Sheet AB-205.

Disturbed non-wetland areas were seeded with a grass mixture consisting of annual rye, red top, sabregrass, switchgrass, wild rye, and deer tongue. Immediately following seed application, the disturbed areas were mulched with straw. A second seed application consisted of 60 percent annual and perrenial rye and 40 percent red top. The vegetative cover is currently well-established at the aforementioned locations. Wetland restoration at Site 2 is addressed in Section 3.1.7. Disturbed non-wetland areas requiring vegetative stabilization and restoration included:

- Areas in the Firefighter Training Area where the concrete pad was removed and buildings were demolished
- · Ground surface between the limits of vegetative clearing and the separator pit floor
- Fill platform established to support the 1,000,000-gallon ModuTank
- General area of concrete separator vault removal and associated contaminated soil excavation.



The upland fields adjacent to the basin were restored in the following manner:

- April of 1995 using 40 percent annual rye, 20 percent redtop, 10 percent rough stalked bluegrass, 10 percent switchgrass, 10 percent deertongue, 10 percent wild rye at 75 pounds per acre; seeded upland areas were mulched and crimped to enhance germination
- In April 1995, an intermittent drainage feature in the upland field area was stabilized using 1-inch coconut bog matting and plugged with 1,000 peat pots of rice cutgrass, 4 black willows, 3 smooth alder, and 3 red maple.

The limits of upland planting and seeding, and a planting schedule are provided on Sheet AB-204.

#### 3.1.6.2 Stormwater Control Features

During restoration at Site 2, stormwater control features were constructed along the eastern limit of the firefighter training pad and in the separator pit outlet swale. Stormwater control features in the firefighter training pad area consist of a rip rap lined swale that drains into both the former separator pit, now a restored wetland, and the wooded wetland north of the former separator pit. The southeastern portion of the wooded wetland has been regraded to drain into the former separator pit instead of directly into the Happy Valley Branch. The restored wetland within the former separator pit overflows at a design elevation into a rip rap lined drainage swale that conveys surface water into the Happy Valley Branch.

#### 3.1.6.3 Permanent Roads

A permanent access road was constructed south and east of the former separator pit. To create the permanent access road, the proposed road alignment was first established by OHM and TWT. The ground surface was then graded to accommodate the stone road. A geotextile was then placed on the graded surface followed by approximately 12 inches of crushed stone. A culvert was installed in the restored separator pit outlet swale to allow the road to continue along the eastern perimeter of the restored separator pit wetland.

# 3.1.7 Wetland Ecological Restoration

### 3.1.7.1 Former Separator Pit Area

Site 2 is comprised of the following wetland restoration areas:

- Former Phragmites pond--Separator pit that was transformed into an emergent wetland basin
- Bottomland forest, north of the separator pit, that contained pesticide-impacted soils.

The floor and side slopes of the former separator pit were seeded at the following times:

- December 1994 using 45 percent annual rye, 25 percent redtop, 10 percent rough stalked bluegrass, 5 percent switchgrass, and 5 percent deertongue at 75 pounds per acre
- March 1995 using 40 percent annual rye, 20 percent redtop, 10 percent rough stalked bluegrass, 10 percent switchgrass, 10 percent deertongue, 10 percent wild rye at 75 pounds per acre
- April 1995 using the aforementioned March 1995 mix.



The basin and side slopes were planted in December of 1994 with the following woody species, and using 1- through 3-gallon container stock: 76 red maple, 41 green ash, 18 pin oak, 15 silver maple, 40 sycamore, 40 black gum, 20 chokeberry, 58 black willow, 27 elderberry, 5 river birch, 40 buttonbush, 32 winterberry, 32 red osier dogwood, 42 smooth alder, 53 tulip poplar, 40 white oak, 40 red oak, 93 arrowwood, 15 boxelder, 5 silky dogwood, and 9 sweetgum.

Open areas within the basin were planted with obligate wetland herbaceous species in March 1995. These plantings included: 100 pickerelweed, 200 soft-stem bulrush, and 200 common three square. Residual *Phragmites* were sprayed with Roundup herbicide at this time.

The limits of wetland restoration at Site 2 are shown on Sheet AB-204. The Site 2 planting schedule is also provided on Sheet AB-204. The wetland planting survival warranty, provided by EQR, is included in Appendix C.

### 3.1.7.2 Former Pesticide-Impacted Wetland Area

All disturbed areas within the pesticide-impacted wetlands were seeded with annual rye grass (10 pounds per acre) and were inter-planted with 15 red maple, 6 boxelder, 15 sycamore, 5 silky dogwood, 9 green ash, 9 sweetgum, 9 sweetbay magnolia, 9 pin oak, and 9 arrowwood.

The limits of wetland restoration at Site 2 are shown on Sheet AB-204. The Site 2 planting schedule is also provided on Sheet AB-204. The wetland planting survival warranty, provided by EQR, is included in Appendix C.

#### 3.2 <u>DESIGN AND FIELD MODIFICATIONS</u>

#### 3.2.1 Design Modifications

Design modifications required by MDE and/or authorized by EFA-Chesapeake include the following:

- Delineation of pesticide-impacted soil and sediment in wooded wetland north of the separator pit
- Excavation of pesticide-impacted soil and sediment in wooded wetland north of separator pit; and, collection of confirmation samples to assess effectiveness of removal action
- Following separate removal actions, restoration of wooded wetland north of separator pit and restoration of separator pit wetland.

#### 3.2.2 Field Modifications

- Installation of a 1,000,000-gallon ModuTank to store treated water prior to its use for dust control
- Demolition of three firefighter training buildings and transportation of resulting debris to Site 1 Old Landfill Area
- Demolition and removal of two concrete oil separator vaults located south of Firefighter Training Building C, removal of petroleum-impacted soils in vicinity of vaults, collection of confirmation soil samples, and placement of clean backfill in resulting excavation



- Excavation of petroleum-impacted soils at eleven former UST locations under the firefighter training pad, collection of confirmation soil and liquid samples, and placement of clean backfill in resulting excavations.
- Expansion of limits of separator pit excavation (i.e., into the berms and beyond) including increase in field screening, sampling, and laboratory analyses
- Modification to the drainage swale located at the eastern limit of the concrete pad such that
  the access road remains at the central portion of the swale; in effect, splitting the swale into
  two parts; a northern half that discharges to the wooded wetland north of the former separator
  pit and a southern half that discharges to the restored separator pit wetland.

# 3.3 SUMMARY OF LABORATORY AND FIELD TESTING

# 3.3.1 Investigative Sampling and Analysis

Investigative sampling and laboratory analysis were performed at areas of environmental concern between July and October 1994. Investigative samples were collected as follows:

- Soils below the firefighter training pad
- Soils within 37.5-foot radius of monitoring wells 2-GW-6 and 2-GW-8
- Tar-like substance in Firefighter Training Building C
- Standing water in firefighter training buildings
- Soils and/or sediment from separator pit floor and inflow/outflow swales
- Turbid liquid sample from separator pit for water treatment system design
- Soil from the separator pit berms
- Soil and sediment within pesticide-impacted wetland.

Site 2 investigative sample locations and laboratory analytical results are provided in Volume 1 of the Contractor Closeout Report.

# 3.3.2 Confirmation Sampling and Analysis

The Site 2 Confirmation Sampling and Analysis Plan dated 9 December 1994 was reviewed by the MDE - Waste Management Administration prior to implementation. Confirmation samples were collected and analyzed at an approved off-site laboratory to assess the effectiveness of soil and/or sediment removal actions in areas of environmental concern. Additional soil and/or sediment was removed when analytical results exceeded established MDE - Waste Management Administration or USEPA risk-based concentrations. Following excavation of impacted soils, confirmation samples were collected as follows:

- · Soils at former UST locations under firefighter training pad
- Soils in the separator pit, berm, and outflow swale areas
- Soils in the concrete separator vault area
- · Soils and sediment in wooded wetland north of the separator pit.

Field screening instruments were used to guide removal of soils impacted by petroleum hydrocarbons. Site 2 confirmation sample locations and laboratory analytical results are provided in Volume 1 of the Contractor Closeout Report.



### 3.3.3 Imported Material Sampling and Analysis

As required, samples were collected of earthen materials imported from off site for use in Site 2 construction activities. Samples of the following imported materials were collected for laboratory analysis:

- · Leaf compost, commercially identified as LeafGro
- Sand fill provided by York Building Products Company, Inc.
- Bank run fill provided by Cecil Sand & Gravel Co. Inc.
- Clay fill provided by Stancills, Inc.

All samples were analyzed for the full TCLP and PCBs. The clay sample was also analyzed for TPH and RCRA Characteristics. All results were acceptable and the materials were imported for use on site. The results for imported material sampling and analysis are presented in Volume 1 of the Contractor Closeout Report.

# 3.3.4 Disposal Sampling and Analysis

Materials requiring off-site disposal were sampled and analyzed at a testing laboratory. The analytical results were used to establish a waste profile for disposal facility acceptance. Waste materials at Site 2 included:

- · PPE and chemically-impacted plastic sheeting
- Vegetative debris and wood chips from clearing and grubbing operations.

A composite sample collected from the PPE roll-offs was analyzed for RCRA Characteristics, TPH, PCBs, and the full TCLP. A composite sample was collected from each of two vegetative debris stockpiles, one consisting of coarsely ground stumps and the other consisting of unground logs and stumps. The two composite samples from the vegetative debris stockpiles were analyzed for RCRA Characteristics, TPH, PCBs, and the full TCLP. All of these items were determined to be non-hazardous. Complete results for waste characterization sampling and analysis are presented in Volume 1 of the Contractor Closeout Report.

# 3.3.5 Geotechnical Testing

Imported and on-site earthen materials were shipped to a geotechnical testing laboratory, FWA Geosciences, Inc. of Bel Air, Maryland, for physical property testing. The purpose of the physical property testing was to characterize construction materials, evaluate the suitability of material, and verify conformance with design specifications. Tests conducted on materials included:

- Grain Size Analysis (ASTM D422) and Hydrometer Analysis
- Atterberg Limits (ASTM D4318)
- Soil Classification (ASTM D2487)
- Direct Shear Test (ASTM D3080)
- Moisture-Density Relationship (ASTM D698).

The results of physical property testing are presented in Volume 1 of the Contractor Closeout Report.



#### 3.4 QUALITY CONTROL REPORT

# 3.4.1 Project Quality Control Program

The purpose of the QC program for this project was to ensure compliance with the project specifications and drawings. The QC function for the on-site work for the remediation of the Site 2 - Firefighter Training Area can be divided into the following four phases:

- Excavation and Solidification
- Water Treatment
- · Wetlands and Site Restoration
- Contract Documentation.

#### 3.4.2 Excavation and Solidification

The limits of excavation for Site 2 were established based on survey stakeout and investigative sampling. Excavation grade control was accomplished by survey and placing grade stakes. Investigation work for impacted soil delineation was performed by sampling and visual inspection under the direction of the project engineer. The limits of the excavation were ascertained by comparing sample results with USEPA risk-based concentrations and MDE cleanup criteria. Excavation limits and sample locations are indicated on drawings provided in Volume 1 of the Contractor Closeout Report. Paint filter testing of solidified soils was performed prior to transport to Site 1.

#### 3.4.3 Water Treatment

A water treatment system was installed to treat liquid resulting from dewatering of the separator pit. EFA-Chesapeake subsequently authorized treatment of monitoring well purge liquids contained within two hundred forty 55-gallon steel drums. Water was treated and pumped to 12,000-gallon pools. Analytical results were received for samples taken from the treatment system outflow. Once acceptable results were received, the treated water was pumped into the ModuTank where it was stored until it could be used on site for dust control in construction areas and roadways.

The implementation of the QC Plan with regard to the water treatment system involved assuring water samples were collected and analytical results received prior to transfer into the ModuTank. QC sampling was performed on each batch of water, both prior to and after treatment. Initially, samples were typically analyzed for turbidity, total petroleum hydrocarbons (USEPA Method 418.1M) and benzene, toluene, ethylbenzene, and xylenes (BTEX; USEPA Method 8020). Testing for turbidity was deleted since the results were very low, a standard was not available, and the treated water was being used for dust control. Batches were randomly analyzed for pesticides by USEPA Method 8080. The results of all water treatment QC testing are provided in Volume 1 of the Contractor Closeout Report.

# 3.4.4 Wetlands and Site Restoration

Implementation of the QC Plan, with regard to impacted soil removal and placement of backfill, ensured compliance with the project specifications. Imported fill was tested for possible contamination prior to use. Erosion and sediment control was established at the beginning of the work and maintained throughout the completion of the project.



The implementation of the site QC Plan, with regard to wetland construction, involved verifying via documentation review and site inspection, that the quantity of plants, the proper plant species, plant spacing, and final elevations were achieved in accordance with the design.

# 3.4.5 Contract Documentation

QC documentation for the project included Daily CQC Inspection Reports which were submitted to the EFA-Chesapeake representative. Submittals required by the contract specification were reviewed by the site QC manager and transmitted to the EFA-Chesapeake representative for review and approval.

A final walk-through was performed on June 14, 1995, with representatives from the EFA-Chesapeake, USGS (as a consultant to the Navy), OHM deputy program manager, OHM project manager, OHM site superintendent, and OHM site QC manager. The site was accepted with punchlist items for correction.

# 4.0 WETLAND MITIGATION AREA

#### 4.1 <u>SUMMARY OF ACTION</u>

Field operations at the Wetland Mitigation Area (Figure 1-1) were performed between October 1994 and August 1995. Wetland construction was performed in this area in order to mitigate permanent wetland losses at Site 1. Wetland construction at Sites 1 and 2 was conducted to restore wetlands disturbed during site activities.

#### 4.1.1 Site Selection Process

The mitigation site selection process was a standard protocol as described in the MD DNR guidance documents and included the following criteria:

- Multiple hydrologic inputs
- Enhancement to receiving waters
- Not disjunct parcels
- · Adjacent to woodland or tied to natural areas
- · Genetic and wildlife corridors
- Disturbance of land
- Accessability to construction equipment
- · Hydric soils
- 100-year floodplain
- Farmed or prior converted wetlands.

Using topographic maps of NTCB, eleven candidate sites were identified which potentially had surface water features capable of supporting wetlands (e.g., confluence of two streams, existing ponded surface water, stream floodplains, etc). Each of the candidate sites was field investigated and seven sites were immediately eliminated due to mature forest stands (which are illegal to cut down for wetland creation) plus each had uncertain hydrologic inputs. Two sites were eliminated due to uncertain hydrologic inputs that would have required detailed studies over a 12-month period, and one site was eliminated because only a small portion of in was on-base and access to the additional areas would have required negotiations with an adjacent landowner.

The NTCB reservoir area was selected as the final candidate site and eventually became the Wetland Mitigation Area for the project. It was selected because it had multiple, high quality hydrologic surface and subsurface inputs, a known or designed water-level elevation, sufficient area for the required mitigation, reasonable access for construction equipment, some existing hydric soils and wetland species along the littoral fringe of the reservoir, and ecologically strong ties to adjacent woodlands and genetic and wildlife corridors.

On 23 August 1994, a field visit was conducted with MD DNR and ACOE representatives to inspect the selected mitigation site and present the conceptual approach to the wetland mitigation. The consensus was that the NTCB reservoir area was an acceptable location for the intended mitigation, the area available was sufficient, and the concept of four progressively drier wetland planting zones was appropriate. On 21 September 1994, the MD DNR issued a permit authorizing the construction of a Wetland Mitigation Area at the NTCB reservoir. Pre-construction topography is shown on Sheet AB-301.



#### 4.1.2 Erosion and Sedimentation Controls

MDE - Water Management Administration provided authorization to proceed with the installation of erosion control features at the Wetland Mitigation Area on 21 October 1994. Construction work began on 25 October 1994 with the installation of silt fence, straw bales, and rock dams. On 4 November 1994, Ms. Emily Morse, a regional inspector with the MDE - Water Management Administration, performed a field inspection of the erosion and sedimentation control features installed at the Wetland Mitigation Area. At the direction of Ms. Morse, a second row of silt fence was installed on land along the edge of the "eservoir. This work was completed on 5 November 1994.

The erosion and sedimentation control features were maintained at the Wetland Mitigation Area since their original installation in 1994 and were removed after the wetland vegetation was well established.

### 4.1.3 Site Preparation and Surveying

During October 1994, TWT obtained supplemental topographic data for the mitigation area and located the approximate limits of the future wetland area. Eastern States Construction, Inc. performed clearing and grubbing, and OHM stripped and stockpiled topsoil. The area was excavated and rough graded between 28 October and 5 December 1994. Infrastructure associated with the adjacent, former potable water treatment facility was removed by OHM during rough grading.

#### 4.1.4 Earthwork

Following site preparation, approximately 17,000 bank cubic yards of earthen spoils were excavated and transported to Site 1 for use as clean fill. Fine grading of the four wetland zones was conducted between 5 December and 13 December 1994. Grade control for each of the four wetland zones was provided by TWT. To obtain final grade, the future wetland area was first overexcavated. Screened borrow from Site 1 was then mixed with LeafGro, an imported compost material, and placed to finished elevations specified by EQR. Approximately 2,000 loose cubic yards of topsoil were produced by mixing of screened borrow and LeafGro.

Final grade of the approximate 1-acre Wetland Mitigation Area consisted of subtle zonation by excavating along the existing shoreline of the reservoir and lowering grades to create planting zones of approximate ½-foot increments in elevation. The created wetland basin undulates from below the normal reservoir water surface elevation (WSE) up to approximately 18 inches above WSE, until it ascends to provide contour tie-in to upland slopes. The surface 2 feet of topsoil was lightly tilled prior to planting. Field survey ensured that micromanagement of hydrological regimes met design intent.

To improve access into the mitigation area, OHM regraded the existing access driveway and installed non-woven geotextile overlain by crusher run. A drainage swale was constructed across the northern access road to convey drainage to the north, away from unstabilized slopes. Rip rap was used where erosion was observed in excavation cut faces. Wire fencing was installed at the water line to prevent migratory waterfowl from entering the wetland plant cultivation areas.

# 4.1.5 Wetland Planting

Wetland planting and winter seeding was performed between 19 December and 21 December 1994. A seed mixture consisting of annual ryc grass, red top, rough stalked blucgrass, switch grass, wild ryc, and deertongue was applied for stabilization of all exposed soils at a rate of 75 pounds to the acre. The seeded area was then covered with blown cut straw mulch. Additional seeding was performed in the spring of 1995 to enhance vegetative cover and improve ground stabilization.



The following indigenous obligate and facultative wetland herbaceous plants were installed in the emergent zone, along the newly created shoreline and in areas of high groundwater at or near the surface (the corresponding number following each plant represents the as-built total number of each species installed): 325 arrowhead, 105 burreed, 25 spatterdock, 200 pickerelweed, 235 softstem bulrush, 150 blueflag, 90 woolgrass, 115 softrush, 150 sweetflag, 225 rice-cut grass, 20 tussock sedge, and 25 cinnamon fern. All herbaceous plants were stapled in place and the emergent plantings were protected using goose protection fencing.

The following woody vegetation was planted: 60 swamp rose, 10 elderberry, 20 silky dogwood, 20 smooth alder, 30 winterberry, 10 spicebush, 26 pepperbush, 59 black willow, 20 arrowwood, 11 highbush blueberry, 4 red maple, 5 sycamore, 5 willow oak, and 8 black gum. All woody plants were heavily mulched with woodchips and were 1- through 3-gallon container stock.

Wetland mitigation monitoring requirements are set forth by the MD DNR permit. As per terms of agreement between the Navy and MD DNR, a 5-year wetland monitoring program will be conducted. The wetland restoration zones are shown on Sheet AB-301, together with the planting schedule for the Wetland Mitigation Area. The wetland planting survival warranty, provided by EQR, is included in Appendix C.

#### 4.1.6 Surveying Monuments

Two surveying monuments, designated SM-1 and SM-2, were installed at the Wetland Mitigation Area by TWT on 26 May 1995. Brass disks, 4 inches in diameter, were set at the top of 30-inch monuments. The monuments, which are protected by cast iron covers and locks, are set in approximately 8 inches of concrete. The following information is provided on the brass monument disks:

- Surveyor
- Monument northing and easting
- Monument designation
- Elevation
- · Installation date.

The as-built locations and detail for the two monuments are provided on Sheet AB-301.

# 4.2 SUMMARY OF LABORATORY AND FIELD TESTING

# 4.2.1 Sampling and Analysis

The Wetland Mitigation Area was not an area of environmental concern; therefore, neither investigative nor confirmation sampling and analysis were performed by OHM.

#### 4.2.2 Imported Material Sampling and Analysis

Only topsoil, produced by mixing screened borrow from Site 1, and LeafGro, a commercial leaf compost product, was imported to the Wetland Mitigation Area. LeafGro, which was an ingredient in the Site 1 compost, was analyzed for full TCLP contaminants and PCBs prior to its importation on site. All results were acceptable and the LeafGro was imported for use on site. The results for imported material sampling and analysis are presented in Volume 1 of the Contractor Closeout Report.



# 4.2.3 Geotechnical Testing

Geotechnical testing was performed on the borrow used to produce topsoil. The results are provided in Volume 1 of the Contractor Closeout Report.

# 4.2.4 Quality Control Testing

Since controlled fill was not placed at the Wetland Mitigation Area, the only QC testing consisted of analysis of the LeafGro for contamination prior to importation.

# 4.3 **OUALITY CONTROL REPORT**

### 4.3.1 Project Quality Control Program

The purpose of the QC program at the Wetland Mitigation Area was to ensure compliance with the project specifications and drawings. The QC function for the on-site work for the remediation of the Wetlands Mitigation Area may be organized as follows:

- Site Grading
- Erosion and Sediment Control
- Wetlands Planting
- · Contract Documentation.

## 4.3.2 Site Grading

The limits of excavation for the Wetland Mitigation Area were established by survey and placing stakes clearly visible during construction activities. Grade control was accomplished by establishing relative elevation control and use of grade stakes. Compost material was verified to be free of contaminants based on laboratory analyses prior to mixing with Site 1 screened borrow to produce topsoil used in establishment of design elevations.

The site QC representative verified grade control by reviewing the grading plan and assuring grade stakes were properly located.

#### 4.3.3 Erosion and Sediment Control

Erosion and sediment control was established at the beginning of work. Silt fences were monitored throughout the length of the project and repaired where needed.

#### 4.3.4 Wetlands Planting

EQR was retained to assist in site selection, conceptual grading plans, design, construction, and planting for wetland mitigation.

The implementation of the site QC Plan, with regard to wetlands construction, involved verifying by documentation review and site inspection that the plant quantities, species, spacing, and design elevations were provided in accordance with the design drawings.



#### 4.3.5 Contract Documentation

QC documentation for the project included Daily CQC Inspection Reports which were submitted to the EFA-Chesapeake representative. Copies of the submittal register are provided in Appendix D. Submittals required by the contract specifications were reviewed by the site QC manager and transmitted to the EFA-Chesapeake representative for review and approval. As-built drawings were maintained by the project engineer.

A final walk-through was performed on June 14, 1995, with representatives from the EFA-Chesapeake and USGS, the OHM deputy program manager, OHM project manager, OHM site superintendent, and OHM site QC manager. The site was accepted with punchlist items for correction.

# 5.0 DISPOSITION OF WASTES AND EXCESS MATERIALS

#### 5.1 CLEARING AND GRUBBING SPOILS

Vegetative spoils from clearing and grubbing of the Site 2 Firefighter Training Area and separator pit areas were ground by Eastern States Construction, Inc. The more finely ground logs and branches were composted on-site and subsequently mixed with screened borrow to create topsoil for use in the vegetative layer. Stumps were ground more coarsely and staged on the drill field. Additional areas requiring landfill material excavation were cleared and grubbed by OHM. Fine chipping and off-site recycling of the new vegetative spoils and the remaining coarsely-ground stump stockpile were subcontracted to Crouse. The resulting chip material was transported to a recycling facility operated by Crouse in Aberdeen, Maryland.

#### 5.2 EARTHWORK SPOILS

All imported fill and on-site borrow were incorporated into construction either at Site 1 or Site 2. Earthwork spoils from the Wetland Mitigation Area were used for fill during restoration of the separator pit area at Site 2 and for fill beyond the limits of the landfill cap at Site 1. Non-hazardous spoils generated from "mucking" or removing of sediment from traps and depressions were used for grading outside the limits of the landfill cap or placed in depressions within the borrow pit area.

#### 5.3 DEMOLITION DEBRIS

Demolition debris from Sites 1 and 2 was placed in the ravine and the western finger pit excavation as authorized by the MDE - Waste Management Administration. Gravity check dams were constructed across the Site 1 landfill ravine using large concrete debris from Site 2. The purpose of the check dams was to provide stability for materials sequentially placed in lifts in the ravine area.

# 5.4 WASTE MATERIALS

### 5.4.1 Non-Hazardous Wastes

Landfill leachate, UST liquids and sludges, PPE, and drum wastes were all disposed of off-site as non-hazardous waste. Wastestreams were shipped to approved non-hazardous waste disposal facilities as follows:

HST liquid:

Drum liquids from UST closures (June 1995):

ppE-

Drum solids (i.e., drill cuttings):

Empty drum carcasses:

Landfill leachate:

International Petroleum Corporation of Delaware International Petroleum Corporation of Delaware

Modern Landfill, York, PA

Modern Landfill, York, PA Patrick Kelly Drums, Inc. (recycler)

Valley Forge Sewerage Authority (POTW)

Phoenixville, PA

Water from oil/water separator pit and former UST location removal actions was treated at the temporary Site 2 water treatment plant. In addition, monitoring well purge liquids, contained within 240 55-gallon steel drums, were transferred to the Site 2 treatment plant. Additional information regarding the temporary water treatment plant at Site 2 is provided in Section 3.4.3. Manifests and bills-of-lading for the aforementioned wastestreams are provided in Appendix E.

# DISPOSITION OF WASTES AND EXCESS MATERIALS

#### 5.4.2 Hazardous Wastes

Hazardous wastes were not generated or discovered at any time during the course of the NTCB removal action.

# 5.5 NON-EXPENDABLE GOVERNMENT PROPERTY

Non-expendable government property, with a value of approximately \$1,000 and durable in nature with an expected life exceeding 1 year, was released by OHM to the Navy in a memorandum dated 17 October 1995. The memorandum, which lists all such materials, was signed by the Navy remedial project manager and returned to OHM (Appendix F).

About 31,700 square feet of HDPE geomembrane liner from the Site 2 ModuTank treated water storage unit and about 31,700 square feet of geotextile underliner also from the Site 2 ModuTank unit have been used in the installed work. With the approval of LCDR Michael Murtha and Frank Zepka, OHM used the geomembrane and geotextile from the ModuTank unit in December 1994 as a winter tarp over the ravine area at Site 1 where it became incorporated under the landfill cap during March and April 1995.

OHM left all materials referenced in the 17 October 1995 acceptance memo on-base (staged on the H-building drill field) when demobilizing the project on 30 August 1995.

# 6.0 HEALTH AND SAFETY

This section describes policies, procedures, and programs implemented for the Site 1 Old Landfill Area, the Site 2 Firefighter Training Area, and the Wetland Mitigation Area.

#### 6.1 SITE-SPECIFIC SAFETY CONTROLS

# 6.1.1 Site-Specific Health and Safety Plan

A site-specific health and safety plan (HASP) was prepared by OHM to describe potential site hazards, hazard control measures for anticipated tasks, definitions of work and support areas, protective equipment, air monitoring methods and equipment, emergency response procedures, and other information pertaining to a safe work environment. All on-site OHM personnel, subcontractors, and visitors to the site were expected to carefully review the HASP, and certify their understanding of the document by signing a log in the HASP appendix.

Upon initial arrival to the site, new OHM personnel and visitors were oriented by the supervisor and/or the site health and safety officer to current site activities and potential hazards.

All on-site OHM personnel and subcontractors were required to attend the daily safety meeting.

# 6.1.2 Daily Safety Meetings

Both OHM and subcontractors participated in daily safety meetings at the beginning of each day to discuss any safety and health issues. The meeting addressed safety and operational issues for work already performed, as well as work scheduled for that day. Safe procedures for conducting scheduled tasks were discussed in detail.

### 6.1.3 Safety Observer Program

An OHM employee was assigned daily as an observer during performance of activities at each site. Each observer would maintain his/her normal job functions. During his/her shift, a minimum of two safety observations would be noted for presentation to all assembled personnel at the next daily safety meeting.

# 6.1.4 Job Safety Analysis

All activities concerning clearing and grubbing, demolition debris handling, removal and handling of potentially hazardous waste, water treatment, excavations, and site restoration underwent thorough review prior to start up using procedures for Job Safety Analysis (JSA). The entire JSA for the designated task was reviewed with employees involved prior to commencing work.

# 6.1.5 Permitting Procedures

Excavation permits were issued on a daily basis when intrusive work was being done in accordance with OHM Procedure No. 28 and Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.147.



#### 6.1.6 Real-Time Air Sampling

An HNU Model PI-101 Photoionization Detector (PID) was used to screen for volatile organic compounds (VOCs) during Site I removal actions in the northwest landfill material excavation area and the Western Liquid Disposal Pit Area. VOCs were not detected in the northwest landfill material excavation area. VOCs were detected during excavation in the Western Liquid Disposal Pit Area at a maximum concentration of 27 ppm using the PID.

A PID was used to screen for VOCs during removal actions at the separator pit and at former UST locations at Site 2. VOCs were detected at levels ranging from 0.03 ppm to 2 ppm. Air monitoring was not performed at the Wetland Mitigation Area because it was not an area of environmental concern.

### 6.1.7 Personal Protective Equipment

Work at Site 1 was generally conducted in Level D/Modified Level D PPE. Modified Level D consists of a polyethylene Tyvek-brand splash suit, sample gloves, nitrile booties, safety glasses, safety shoes, and hard hat. During excavation of landfill material northwest of the landfill cap, work was conducted in Level C until air monitoring results justified a downgrade to Level D/Modified Level D. Level C protection consists of Modified Level D PPE and the addition of a full-face air-purifying respirator with GMC-H cartridges, hooded Tyvek coveralls, and hearing protection. During impacted material removal in the Western Liquid Disposal Pit Area, personal protection was upgraded from Level C to Level B based on PID results. Level B protection consists of the items required for Level C protection, with the exception that an air-supplied respirator apparatus is used in place of the air-purifying respirator.

All work at Site 2 was conducted in Level D/Modified Level D.

Work in the Wetland Mitigation Area was conducted in Level D/Modified Level D protection. Employees working in vegetated areas were required to wear Tyvek gloves to protect themselves from poison ivy and ticks. Any exposure to either condition was to be reported immediately to the site supervisor and site safety officer (SSO).

# 6.1.8 Slips, Trips, and Falls

All immovable hazards were clearly marked by caution tape, cones, reflective paint, and signs to protect workers and visitors to the site.

### 6.1.9 Equipment Inspection

All equipment, loaders, dozers, pumps, hoses, and cells used in water treatment were inspected and logged daily. Any defective equipment was repaired or replaced immediately.

# 6.1.10 Safety Programs

The following programs were implemented at the beginning of the project to help prevent injuries or accidents:

 Near-Miss program--Program which examines near miss accidents to find ways to eliminate the potential hazard



- Monthly Project Manager Safety Audit--Conducted on a monthly basis by the project manager and SSO
- Weekly SSO Site Audit--Conducted by the SSO and site supervisor on a weekly basis
- Hazard Communication Program--All personnel were required to review the Hazard Communication Program, Material Safety Data Sheets (MSDSs) on chemicals exposure, and the JSA related to their task prior to entering any of the three work areas.
- Training--Verification that all OHM employees and subcontractors completed the OSHA 40-hour and 8-hour refresher (HAZWOPER) training, in accordance with 29 CFR 1910.120(e).

# 6.2 <u>SITE-SPECIFIC SAFETY PERFORMANCE</u>

Work was completed at NTCB without any OSHA lost-time injuries. Two separate OSHA recordable injuries, heat exhaustion and a cut hand, took place on 19 August 1994. These were the only OSHA recordable injuries for the entire project. The Safety and Health Awareness/Recognition Program (SHARP) was in effect during this project and employees completed a total of over 90,000 manhours without serious injury.

# 7.0 SUMMARY OF RECORD DOCUMENTS

# 7.1 PERMITS AND AUTHORIZATIONS

The following permits and authorizations were obtained from the MDE by EFA-Chesapeake for work performed at NTCB:

- Water Appropriation and Use Permit dated 1 July 1994 [Permit No. CE94S042(01)] issued by MD DNR Water Resources Administration for dewatering activities at the Site 2 separator pit; the same permit was renewed [Permit No. CE94S042(02)], and was effective for the period 1 October 1994 to 1 January 1995.
- Water Appropriation and Use Permit dated 1 July 1994 [Permit No. CE94G043(01)] issued by MD DNR Water Resources Administration for leachate collection at Site 1 landfill seeps.
- Authorization to Proceed dated 20 July 1994 (Authorization No. 94-NT-0582/199467226) issued by MD DNR Water Resources Administration for Site 1 Old Landfill Area delineation and separator pit investigative activities, and a leachate collection system installation, all conducted in wetland areas.
- Nationwide Permit dated 20 July 1994 issued by the Baltimore District of the U.S. Army Corps of Engineers authorizing Site 1 landfill material delineation activities, and Site 2 oil/water separator pit investigative activities consisting of removal and treatment of standing water and collection of soil samples.
- Authorization letter from MDE Wastewater Discharge Permit Program dated 13 September 1994 approving use of treated Site 2 separator pit water for dust control.
- Nontidal Wetlands and Waterways Permit dated 21 September 1994 (Permit No. 94-NT-0583/199467229) issued by MD DNR Water Resources Administration authorizing remedial activities in non-tidal wetlands and buffer areas and stipulating mitigation/restoration requirements.
- Stormwater Management and Sediment & Erosion Control Approvals dated 9 November 1994 (MDE Permit No. 94-SF-0374) issued by Mr. Daniel O'Leary, P.E., Chief, Plan Review Division, MDE; approval is for plans and specifications titled "Remediation at NTC, Bainbridge" prepared by OHM.
- Minor Modification Approval dated 30 November 1994 for Permit No. 199467229/94-NT-0583 (issued 21 September 1994); minor modification approval granted by MD DNR Water Resources Administration requires groundwater monitoring in wetlands areas and stipulates MD DNR acceptance requirements for mitigated and restored wetlands.

Copies of permits and authorizations obtained from the State of Maryland and U.S. Army Corps of Engineers are provided in Appendix G.



#### 7.2 OPERATIONS PLAN

The following operations plans for the NTCB removal actions were prepared by OHM and submitted to EFA-Chesapeake for review and approval:

- Quality Control Plan dated 5 May 1994
- Site-Specific Health and Safety Plan dated 5 May 1994
- Environmental Protection Plan dated 5 May 1994
- · Operations Work Plan dated 6 May 1994
- Field Sampling and Analytical Plan dated 18 May 1994.

# 7.3 <u>TECHNICAL SUBMITTALS</u>

In addition to this document and as-built drawings, the following technical submittals were prepared by OHM and submitted to EFA-Chesapeake and the MDE:

- Preliminary Sampling and Analytical Report dated 26 August 1994
- Design Modifications Drawings signed on 6 October 1994
- Basis of Design Modifications document dated 6 October 1994
- Response to 18 October 1994 Review Comments (made by Mr. D. O'Leary, P.E., MDE Plan Review Division) dated 2 November 1994
- Preliminary Sampling and Analytical Report dated 2 January 1995
- Draft Contractor Closeout Report, Volume 1, Sampling, Analytical, and Testing Report dated 29 June 1995.

# 7.4 AS-BUILT DOCUMENTATION

Photographs indicating pre-construction, work-in-progress, and post-construction features for the Site 1 Old Landfill Area, the Site 2 Firefighter Training Area, and the Wetland Mitigation Area are provided in Appendix H.

OHM has prepared the following as-built drawings (provided in Appendix I):

Sheet I.D.	Title		
AB-001	Title Sheet		
AB-002	1994 Project Schedule		
AB-003	1995 Project Schedule		
AB-101	Site No. 1 - Topography of Pre-Construction Conditions with Test Pit Locations		
AB-102	Site No. 1 - Topography of Landfill Cap - Top of Waste Layer		
AB-103	Site No. 1 - Topography of Final Cover Layer		

# **SUMMARY OF RECORD DOCUMENTS**

Sheet I.D.	Title
AB-104	Site No. 1 - Topography of Barrier Soil Layer
AB-105	Site No. 1 - Topography of Post-Construction Conditions
AB-106	Site No. 1 - Landfill Cap Geomembrane Panel Layout
AB-107	Site No. 1 - Topography of Wetland Restoration Areas
AB-108	Site No. 1 - Sections - Landfill Cap
AB-109	Site No. 1 - Miscellaneous Details - Sheet 1 of 2
AB-110	Site No. 1 - Miscellaneous Details - Sheet 2 of 2
AB-201	Site No. 2 - Topography of Pre-Construction Conditions
AB-202	Site No. 2 - Topography of Contaminated Soil Excavations
AB-203	Site No. 2 - Topography of Post-Construction Conditions
AB-204	Site No. 2 - Planting and Seeding Areas
AB-205	Site No. 2 - Sections and Details
AB-301	Wetlands Mitigation Area - Topography, Section, and Details

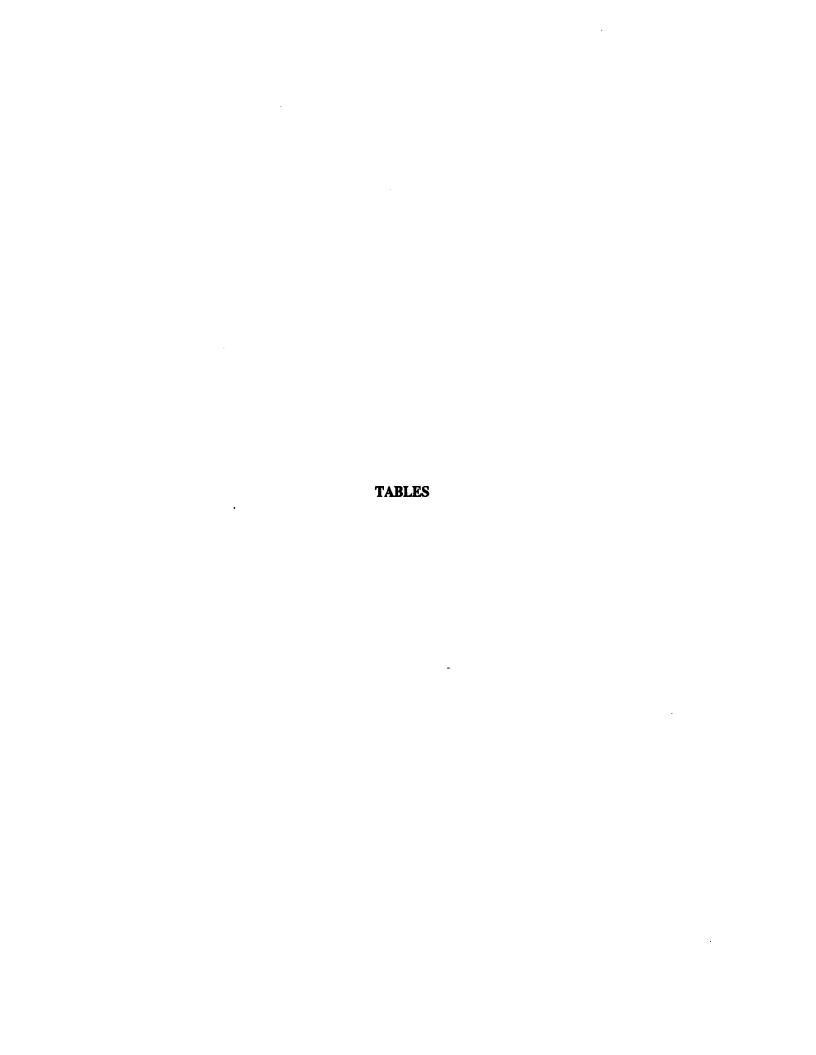


TABLE 1-1
LIST OF SUBCONTRACTORS

Name	Address and Contact	Function	Area(s)
American Environmental Network, Inc.	9151 Rumsey Road - Suite 150 Columbia, MD 21045-1992 (410) 730-8525 Vincent Kuyawa	Laboratory analytical services	OLA, FTA
Analytical Services Corporation	16406 U.S. Route 224 East P.O. Box 1404 Findlay, OH 45839-1404 (419) 423-3526 William Fithian	Laboratory analytical services	OLA, FTA
Bobtown Nursery, Inc.	16212 Country Club Road Melta, VA 23410 (804) 787-8484	Wetland plantings	OLA, FTA, WMA
Calgon Carbon Corporation	P.O. Box 6768 1120 Rte. 22 East Bridgewater, NJ 08807 (908) 526-4646 James McNeill	Water treatment: granular activated carbon and carbon vessels	FTA
Clean Harbors of Baltimore, Inc.	1910 Russell Street Baltimore, MD 21230 (410) 244-8200 Tim McCarthy	Transportation of drums; bulking of drum contents for disposal	OLA

TABLE 1-1 (CONTINUED)

Name	Address and Contact	Function	Area(s)
Crouse Construction, Inc.	1415 Mountain Road Joppa, MD 21085 (410) 879-1822 James Halsey	Grinding of vegetative debris, material transport using scrapers	OLA, FTA
Dugan Pole & Light	P.O. Box 222 Rising Sun, MD 21911 (410) 658-5716 Ken Dugan	Electrical line hookup	OLA
Eastern States Construction, Inc.	702 First State Blvd. Wilmington, DE 19805 (302) 995-2259 Rex King	Clearing and grubbing; grinding of vegetative debris	OLA, FTA, WMA
Environmental Quality Resources, Inc.	1738 Elton Road - Suite 310 Silver Spring, MD 20903 (301) 439-2000 Carter McCamy or Mark Burchick	Wetland technical consultant; provide and install wetland plants; provide and install topsoil amendments; and seeding	OLA, FTA, WMA
Envirotrol, Inc.	432 Green Street P.O. Box 61 Sewickley, PA 15143 (412) 741-2030 Tim Sokol	Water treatment: sand cell and sand cell filtration media	FTA

TABLE 1-1 (CONTINUED)

Name	Address and Contact	Function	Area(s)
FWA Geosciences, Inc.	54 East Lee Street P.O. Box 727 Bel Air, MD 21014 (410) 838-7315 John Boyle, P.E.	Laboratory/field geotechnical testing	OLA
Harford Hydroseeding, Inc.	P.O. Box 507 Forest Hill, MD 21050 (410) 879-2209 Joseph Knott	Hydroseeding of Route 276 area	OLA
I-Corp International, Inc.	1250 S. Federal Highway Boynton Beach, FL 33435 (407) 369-0795 Ian Peggs, Ph.D., P.E.	Quality assurance of geosynthetic materials and their installation	OLA
M.E.T. Limited, Inc.	13021 Beaver Dam Road Hunt Valley, MD 21031 (410) 584-8003 Michael Turley	Hydroseeding of landfill cap and disturbed areas	OLA
Myers Analytical Laboratories, Inc.	2911 Southwestern Ave. Manchester, MD 21102 (410) 374-1844	Agronomic laboratory testing	OLA, FTA, WMA
Patrick Kelly Drums, Inc.	6226 Pidcock Creek Road New Hope, PA 18938 (609) 963-1795	Metal drum recycling	FTA

New Review

TABLE 1-1 (CONTINUED)

Name	Address and Contact	Function	Area(s)
Reifsneider Transportation, Inc.	519 Royersford Road P.O. Box 48 Royersford, PA 19468 (610) 948-9377 James Hoff	Transportation for bulk liquid disposal	OLA, FTA
S-J Transport Company	P.O. Box 169 U.S. Rte. 40 Woodstown, NJ 08098 (609) 769-2741 Ed Remster	PPE disposal transportation	OLA, FTA
Solmax Geosynthetics, Inc.	4691 Commercial Drive, Suite 345 New Hartford, NY 13413 (315) 853-8930 Todd Jones	Geosynthetics installation	OLA
Taylor Wiseman and Taylor, Inc.	92 Read's Way New Castle Corporate Commons New Castle, DE 19720-1649 (302) 322-6200 Donald MacKay, L.S.	Surveying services	OLA, FTA, WMA
Wildlife Nursery, Inc.	P.O. Box 2724 Oshkosh, WI 54903 (414) 231-3780	Wetland plantings	OLA, FTA, WMA

# TABLE 1-1 (CONTINUED)

Name	Address and Contact	Function	Area(s)
York Building Products Company, Inc.	P.O. Box 783 Perryville, MD 21903 (410) 378-4477 Jon Brentlinger	Borrow supplier	OLA, FTA

# Notes:

OLA - Old Landfill Area FTA - Firefighter Training Area WMA - Wetland Mitigation Area

TABLE 1-2
LIST OF CONSTRUCTION MATERIALS

Material	Quantity	From	To	Ву
Impacted soils from three southern finger pits	3,014 BCY	Site 1	Site 1 Ravine	ОНМ
Regraded existing landfill materials	29,436 BCY	Site 1	Site 1	ОНМ
Additional landfill materials from northern excavation	20,800 BCY	Site 1, Outside Cap Limits	Site 1, Under Cap	ОНМ
Impacted soils from sediment trap berm of active rubble landfill	1,800 BCY	Site 1, Outside Cap Limits	Site 1, Under Cap	ОНМ
Impacted soils from separator pit, inlet/outlet ditches, and separator vaults	24,000 BCY	Site 2	Site 1 - Ravine	ОНМ
Pesticide impacted soils	750 BCY	Site 2	Site 1 - Ravine	ОНМ
Concrete debris from buildings, separator vault, and pad	2,200 LCY	Site 2	Site 1 - Ravine	ОНМ
Impacted soils from below concrete pad	11,000 BCY	Site 2	Site 1	ОНМ
Impacted water treatment	460,000 GAL	Site 2	Site 2	ОНМ
Drummed purge water treatment	600 GAL	Site 2	Site 2	ОНМ
Dust control spraying of treated water	460,600 GAL	Site 2	Site 1 and base roads	ОНМ

TABLE 1-2 (CONTINUED)

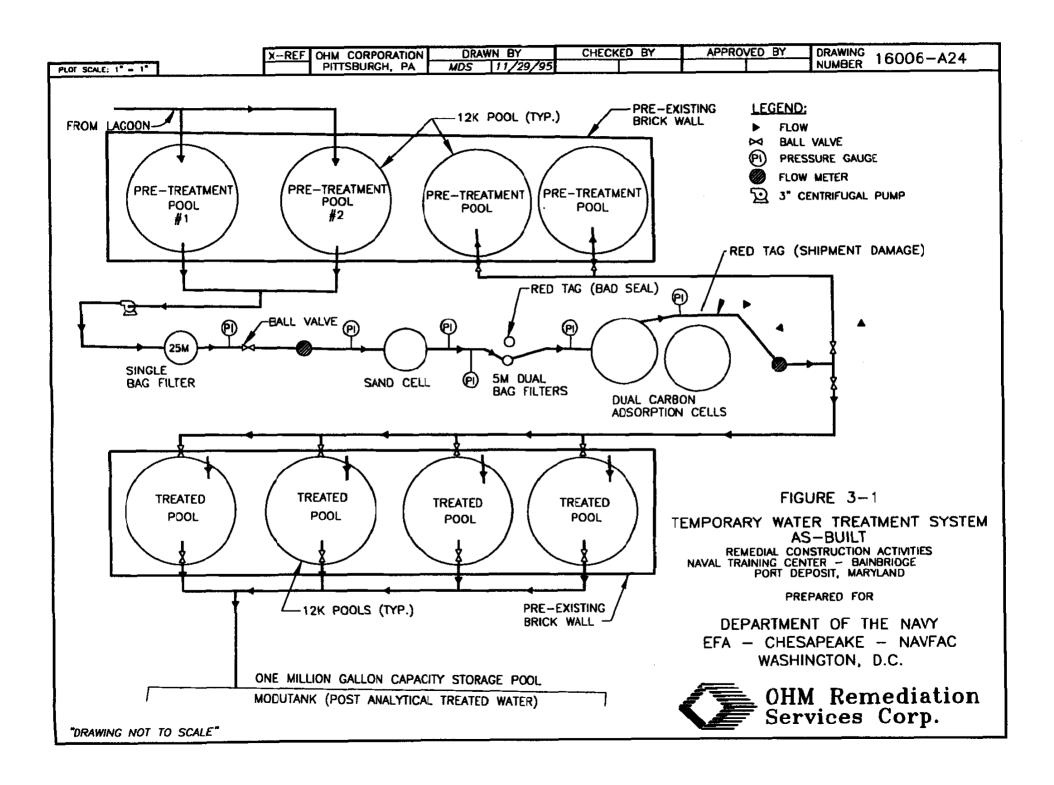
Material	Quantity	From	To	By
Oily water from UST's	19,500 GAL	Site 1	International Petroleum Corporation of Delaware	Reifsneider Transportation, Inc.
Purge drum carcasses	240 DRUMS	Site 2	Patrick Kelly Drums, Inc.	Patrick Kelly Drums, Inc.
Impacted stormwater and seepage	61,809 GAL	Site 1	Valley Forge Sewerage Authority	Reifsneider Transportation, Inc.
UST carcasses	6 USTs	Site 1	Site 1 - International Crane Co.	ОНМ
Final cover soil	44,850 CCY	Site 1 borrow pits and off- site borrow (York Building Supply Company, Inc.)	Site 1 - Cap	ОНМ
Barrier soil layer	33,400 CCY	Off-site borrow (York Building Supply Company, Inc.)	Site 1 - Cap	ОНМ
Topsoil layer	11,100 CCY	Site 1 - composting	Site 1 - Cap	ОНМ
Gas vent geonet composite layer	650,000 SFT	National Seal Company	Site 1 - Cap	Solmax Geosynthetics, Inc.
40-mil HDPE geomembrane (smooth)	600,000 SFT	National Seal Company	Site 1 - Cap	Solmax Geosynthetics, Inc.
40-mil HDPE geomembrane (textured)	50,000 SFT	National Seal Company	Site 1 - Cap	Solmax Geosynthetics, Inc.
Drainage geonet composite layer	650,000 SFT	National Seal Company	Site 1 - Cap	Solmax Geosynthetics, Inc.

TABLE 1-2 (CONTINUED)

Material	Quantity	From	То	Ву
Anchor trench stone	400 CCY	Crouse Construction, Inc.	Site 1 - Cap	ОНМ
Anchor trench pipe	3,170 LFT	Local supplier	Site 1 - Cap	ОНМ
Gas vent risers	43 RISERS	Form Services, Inc.	Site 1 - Cap	ОНМ
Hydroseeding	35 ACRES	Site 1	Site 1	MET, Inc.
Hydroseeding	2 ACRES	Site 1	Site 1	Harford Hydroseeding, Inc.
Wetland Planting	0.84 ACRES	Site 1	Site 1	EQR
Wetland Planting	1.25 ACRES	Site 2	Site 2	EQR
Wetland Planting	1.01 ACRES	Wetland Mitigation Area - Bobtown Nursery, Inc Wildlife Nursery, Inc.	Wetland Mitigation Area	EQR
Rip Rap	7,200 TONS	Off-site borrow	All work areas	ОНМ
Chain-link fencing	675 LFT	Site 1	Site 1	Fenner Fence Company
Drummed drill cuttings, purge water, PPE, and UST cleaning liquids	38 DRUMS	Site 1	Modern Landfill York, PA	Clean Harbors and S-J Transportation Company







# APPENDIX A WELL ABANDONMENT REPORTS

# OFFICE OF ENVIRONMENTAL PROGRAMS WELL APPROXIMENT REPORT

	DATE 10/	25/94	
Permit number of abandoned well (if any) CF <u>\$ 1</u> - Permit number of replacement well (if any)	<u> 3                                   </u>		
Driller Taylor Potter	,		
Owner's name OHM SITE MAIL Last First			
Well location: Address RT276 + FISKE RD	01	15	مر <i>ا</i> ح
Subdivision CHESAPEAKE TAR COMPS CENTER Section Lot			•
Nearest town PorT DEPOSIT MD			
Maryland grid location	X 0,	16	5/0
Box number [1060.000]	Show well ] (x) within	box	
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Type of well Drilled	MATERIAL	FRCM	TO
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Depth of Well 34.7 feet	10 2	0,0	34.7
Type of casing  Steel  Y Plastic  Concrete  Other, specify			
Size of casing 4" feet'			
Was any casing removed? X Yes No If Yes, amount removed 34.7 (feet)			
Was casing ripped or perforated?YesX	No.		
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	MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANA 2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21:	224, (410) 631-3784	N	
****	WATER WELL ABANDONMENT-SEALING REPO		******	****
****	TOPIES OF COMPLETED FORM TO:	SiTL	= Z	****
* * *	COUNTY ENVIRONMENT AGENCY (contact MDE, WMA if address needed) WELL OWNER MDE, WATER MANAGEMENT ADMINISTRATION, WELL PROGRAM			
DATE	WELL ABANDONED: July 29, 1994 (month/day/year)			
*	PERMIT NUMBER OF ABANDONED WELL (if any) N.			]
*	PERSON ABANDONING WELL: Terry Mise Well DR	LLERS LICENSE NUMBER:	JGD026	<u> </u>
*	OWNER'S NAME: UNITED STATES MANY			
*	WELL LOCATION:			
	COUNTY: Gecil Gounty  NEAREST TOWN: PORT Deposit  TAX MAP BLOCK PARCEL SUBDIVISION: Cessapeake Job Corps Center  SECTION: LOT:	X		
	MARYLAND GRID COORDINATES	^		
	BOX NUMBER  N 640	000		
•	TYPE OF WELL BEING ABANDONED:	SHOW WELL LOCA BY X WITHIN BO		
	DRILLED JETTED  BORED/AUGUERED HAND DUG  OTHER (specify)	LOG OF SEALIN	IG MATERL	AL
*	USE CODE:		FEI	ΞT
	DOMESTIC MUNICIPAL/PUBLIC IRRIGATION INDUSTRIAL	MATERIAL	FROM	то
*	TYPE OF CASING:	bentonite/	20'	0
	STEELY PLASTIC			

MATERIAL FROM TO

bentonite/ ZC' C'

cement

TIGNATURE MASTER WELL DRILLER OR SUPERVISING SANITARIAN LICENSE # DATE

\_\_\_\_ OTHER (specify)

\_\_ INCHES IN DIAMETER

FEET DEEP

GASING RIPPED OR PERFORATED? \_\_\_YES \_\_\_\_ NO

DENV 828 JULY 1993

\_\_ CONCRETE

WAS ANY CASING REMOVED? \_\_\_\_ YES \_\_ if yes, length removed, in feet: \_\_\_\_\_

SIZE OF CASING: \_

DEPTH OF WELL: \_

# MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION 2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21224, (410) 631-3784

	WATER WELL ABANDONMENT-SEALING REPORT F	**************************************	******	*****
****	**************************************	****************	******	****
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DATE	WELL ABANDONED: July 29, 1994 (month/day/year)			
*	PERMIT NUMBER OF ABANDONED WELL (if any)  PERMIT NUMBER OF REPLACEMENT WELL	H88H/	33	
*	PERSON ABANDONING WELL: Terry Mise WELL DRILLE	RS LICENSE NUMBER:	JGD026	<u>.</u>
*	OWNER'S NAME: <u>UNITED STATES NAVY</u>			
*	WELL LOCATION:		<del></del>	
	COUNTY: Cecil County  NEAREST TOWN: Port Deposit  TAX MAP BLOCK PARCEL SUBDIVISION: Chesapeake Job Corps Center  SECTION: LOT:			
	MARYLAND GRID COORDINATES  E  BOX NUMBER  N640	000		
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*	WAS ANY CASING REMOVED? YES NO if yes, length removed, in feet: NO			
GNA	WAS CASING RIPPED OR PERFORATED? YES NO  // / B \( \) - C // C  TURE MARY EN WEAT LER OR SUPERVISING SANITARIAN LICENSE #  828   JULY 1993	/- / // - / / DATE	4	
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# MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION 2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21224, (410) 631-3784

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* MDE, WATER MANA	GEMENT ADMINISTRATION, WELL PROGRA	M			
DATE WELL ABANDONED:_	<u> 1925 94 1994</u> (month/day/yea	ir)			
					7
* PERMIT NUMBER OF	ABANDONED WELL (if any) ▶				
* PERMIT NUMBER OF	REPLACEMENT WELL				]
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* PERSON ABANDONIN	IG WELL: Tarcy Misa	WELL DRILLERS	S LICENSE NUMBER:	JGD026	
* OWNER'S NAME:	INTERED SMALLE MARK				
* WELL LOCATION:		Г			
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	TOWN: PAPCEL				
	BLOCK PARCEL Chasapease Job Corps Cent	er			
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GNATURE MASTER WEAL	LEP OR SUPERVISING SANITARIAN	LICENSE #	DATE		
DENV 828 - JULY 1993					

# APPENDIX B REVISED PROJECT SPECIFICATIONS

#### **SECTION 05100**

#### FINAL COVER LAYER/BARRIER SOIL LAYER

### PART 1 GENERAL

#### 1.1 SCOPE

Work covered in this section shall consist of placement, grading and compacting a two-foot final cover layer over the newly placed or existing landfill materials, and constructing an 18 inch barrier soil layer in accordance with the drawings and specifications. The intent of final cover layer is to support the HDPE geomembrane and to provide a working surface for the installation of geomembrane. The barrier soil layer is intended to protect the geomembrane from puncture, tear and/or separation.

#### 1.2 SUBMITTALS

Submit certifications in accordance with section 01300 "Submittals", that final cover and barrier soil layer materials meet these requirements of the specifications.

### PART 2 PRODUCTS

The soil material used for final cover and barrier soil layers shall be classified as SP, SW, SC or SM, in accordance with ASTM D2487 and shall be free of roots, wood, peat, cinders, brush, weeds, toxic substances and stones larger than 1 inch diameter.

## PART 3 EXECUTION

#### A. FINAL COVER LAYER

Final cover layer shall be constructed at locations and to lines and grades indicated on approved design drawings. Minor field variations as determined by the field engineer may be allowed. The soil for final cover shall be placed in lifts not exceeding 12 inches in loose depth. The soil shall not be placed on surfaces that are muddy, frozen, or contain frost. The soil shall be compacted with a 6-ton (minimum static load) vibratory smooth drum roller with a minimum of three passes to achieve 90 percent of standard Proctor maximum dry density (ASTM 698). The soil shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction.

# B. BARRIER SOIL LAYER

The barrier soil layer shall be constructed in accordance with the lines and grades indicated on approved design drawings, except for minor variations allowed by the field engineer. The soil shall be placed in one 18-inch "compacted" lift. The compaction shall be incidental as provided during the installation of barrier layer. The barrier soil layer shall be firm and stable as determined by the field engineer. The field engineer may choose to compact the barrier soil layer with three passes of a 6½-ton static roller (no vibrations allowed) on slopes at or steeper than 4H:1V.

- END OF SECTION -

#### SECTION 05300

#### **GAS VENT SYSTEM**

# PART 1 GENERAL

#### 1.1 SCOPE

Work covered in this section shall consist of excavation of gas vent trenches, installation of pipes and backfilling in accordance with the approved design drawings and specifications.

#### 1.2 SUBMITTALS

Submit certifications in accordance with Section 01300 "Submittals," that the aggregate backfill meets the requirements of these specifications.

#### PART 2 PRODUCTS

# 2.1 Aggregate

The aggregate shall be AASHTO No. 5 material—crushed or natural stone; free of shale, clay, friable materials, and debris. It shall have a carbonate content of less than 15 percent and shall be graded in accordance with the following limits:

Sieve Size	Percent Passing
1½ inch	100
1 inch	90 to 100
¾ inch	20 to 55
½ inch	0 to 10
3/s inch	0 to 5

#### 2.2 Concrete Mix

The concrete mix shall be "Sakrete" or equivalent that meets the requirements of ASTM C387.

# 2.3 Pipes/Pipe Accessaries

All pipes shall be 6-inch-diameter, Schedule 40 polyvinyl chloride (PVC) pipes. The pipes shall be slotted as shown on the drawings with minimum 20 slots per foot of pipe length. The slot width shall not be more than 2 millimeters (0.08 inches). All pipe accessaries and caps shall be PVC and compatible with the pipe except as noted on the drawings.

# 2.4 Carbon Steel Cap

Carbon steel caps (8-inch-diameter) shall be such that they are capable of being magnetically detected (by the specific magnetic detectors owned by the contractor) if covered by at least 6 inches of AASHTO No.5 gravel and 40-mil HDPE geomembrane.

#### 2.5 Geotextile

The geotextile shall be non biodegradable non woven polypropylene with a nominal weight of 8 ounces/square vard.

#### PART 3 EXECUTION

The gas vents shall be installed in accordance with the drawings and shall include excavation, lower pipe installation, backfilling, pipe extension, and boot installation/seaming.

The excavation shall be made prior to the installation of synthetic composite layer. The slope of the trenches may be changed to provide stable wall conditions. The geotextile shall be installed with its edges at least 2 feet beyond the limits of the trench. Overlapping of pieces of geotextile may be allowed to cover the excavation provided that the overlap does not exceed 1 foot. The pieces of geotextile shall be tied with plastic ties at every 1 foot. Lower pipe section (3 feet long) shall be installed with its capped bottom into 1-foot-high concrete mound. The top of the pipe shall be capped with PVC cap which shall be covered with carbon steel cap/sleeve. The top of the sleeve shall be approximately 6 inches below the grade. After the placement of sleeve the trench shall be backfilled with aggregate to the grade in 12-inch maximum loose lifts and lightly tamped with mechanical or hand tampers.

After the installation of synthetic composites and geomembrane, the location of carbon steel sleeve shall be magnetically located. This location shall be marked on the synthetic composite with permanent markers and a hole no more than 18 inches in diameter shall be cut and sleeve exposed. The sleeve and PVC cap shall be removed and a coupler installed to extend the riser pipe as shown on the drawings. The flexible fiber reinforced hose has been included in the design so that the pipe assembly can withstand the accidental impact to the pipe above the reinforced hose. The HDPE boot shall be installed last as per construction drawings.

- END OF SECTION -

#### **SECTION 02930**

#### TURF

#### PART 1 GENERAL

#### 1.1 SCOPE

Work covered in this section shall consist of placement of topsoil, seeds, fertilizers and pH adjusters, mulches, watering, and erosion control on the landfill and in the areas of construction disturbance.

# 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

# DEPARTMENT OF AGRICULTURE (DOA)

DOA FSA

1985 Federal Seed Act Rules and Regulations of the Secretary of Agriculture

DOA SSIR

1984 Soil Survey Investigation Report No. 1, Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples, soil Conservation Service

MD G-20-3

1991 Maryland Standards and Specifications for Soil and Erosion Control

# 1.3 DEFINITIONS

#### 1.3.1 Stand of Turf

90 percent ground cover of the established species.

# 1.4 SUBMITTALS

Submit the following in accordance with Section 01300 - "Submittals."

# 1.4.1 Manufacturer's Catalog Data

- a. Erosion control materials
- b. Wood cellulose fiber mulch.

Include physical characteristics, and recommendations.

# 1.4.2 Test Reports

# a. Topsoil composition tests

Submit report for soils stating pH, soluble salts, and nutrients as required by MD G-20-3 and Organic Carbon 6A, Chemical Analysis Method DOA SSIR. Also, submit report for on-site soil sources only stating chemical composition as specified in Section 02055 - "Contaminated Soils Removal, Hauling, and Stockpiling."

# 1.5 DELIVERY AND STORAGE

# 1.5.1 Delivery

#### 1.5.1.1 Seed Protection

Protect from drying out and from contamination during delivery, on-site storage, and handling.

# 1.5.1.2 Fertilizer and Lime Delivery

Deliver to the site in original, unopened containers bearing manufacturer's chemical analysis, name, trade name, trademark, and indication of conformance to state and federal laws. Instead of containers, fertilizer and lime may be furnished in bulk with certificate indicating the above information.

# 1.5.2 Storage

### 1.5.2.1 Seed, Lime, and Fertilizer Storage

Store in cool, dry locations away from contaminants.

# 1.5.2.2 Topsoil

Stockpile topsoil on ground which is free of vegetation.

### 1.6 TIME RESTRICTIONS AND PLANTING CONDITIONS

# 1.6.1 Planting Dates

# 1.6.1.1 Seed

Spring and fall are optimum seeding seasons. Sow seed from March 1 to April 30 for spring planting and from August 1 to October 15 for fall planting. Seeding may be done in an emergency

during other time periods with the approval of the Contracting Officer. Winter months' seeding requires 2 tons per acre of well-anchored mulch. Summer months' seeding requires addition of Weeping Lovegrass to seed mixture as described elsewhere in this section.

#### 1.6.2 Restrictions

Do not plant when the ground is frozen, snow covered, or muddy.

## 1.7 EXTENT OF WORK

Provide seedbed preparation, topsoiling, fertilizing, seeding, and mulching of all newly graded finished earth surfaces, unless indicated otherwise, and at all areas inside or outside the limits of construction that are disturbed by the Contractor's operations.

#### PART 2 PRODUCTS

#### 2.1 **SEED**

# 2.1.1 Classification

State-approved of the latest season's crop delivered in original sealed packages, bearing producer's guaranteed analysis for percentages of mixtures, purity, germination, weedseed content, and inert material. Label in conformance with DOA FSA and applicable state seed laws. Wet, moldy, or otherwise damaged seed will be rejected. Field mixes will be acceptable when field mix is performed on site in the presence of the Contracting Officer or his representative.

# 2.1.2 Composition

# 2.1.2.1 Disturbed Areas Outside Landfill Cap Limits

Planting Season (by Weight)	<u>Variety</u>	Percent
Spring, Fall, & Winter	Red Switchgrass	10%
	Perennial Rye	40%
	Red Top	20%
	Deer Tongue	20%
	Red Clover	10%

During summer planting season, add 3 pounds per acre of Weeping Lovegrass to seed mixture.

## 2.1.2.2. Landfill Cap Seed Mixture

Planting Season (by Weight)	Variety	Percent
Spring, Fall, & Winter	Tall Fescue	70%
	Perennial Rye	10%
	Red Top	10%
	Red Clover	10%

During summer planting season, add 3 pounds per acre of Weeping Lovegrass to seed mixture.

### 2.2 TOPSOIL

The topsoil shall consist of (by volume) 75 to 80 percent on-site screened borrow (maximum size 1 inch), and 20 to 25 percent composted material. The composted material, in turn, shall consist of (by volume) 50 percent woodchips produced from on-site activities, 12 to 13 percent horse manure, 35 to 40 percent leaf grow. A minimum of 3 months' time shall be allowed for composting. Imported compost may be used as necessary to supplement compost generated on site.

The topsoil shall be free from slag, cinders, stones, lumps of soil, sticks, roots, trash, or other extraneous materials larger than  $1\frac{1}{2}$  inch in size. The resulting topsoil mix may contain some wood chips less than  $1\frac{1}{2}$  inch in size. Topsoil shall contain from 3 to 10 percent (by Weight) organic matter as determined by the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis method described in DOA SSIR or equivalent method for measuring organic matter.

# 2.3 pH ADJUSTERS

#### 2.3.1 Lime

Commercial grade ground limestone containing not less than 80 percent calcium and 14 percent magnesium oxide, gradation as follows: Minimum 75 percent passing 100-mesh sieve and 100 percent passing 20-mesh sieve.

## 2.4 FERTILIZER

# 2.4.1 Controlled Release Fertilizer with Hydroseeding

Nitrogen-phosphorus-potassium ratio of 10-20-20, with controlled fertilizer release as necessary to meet minimum turf coverage requirements.

#### 2.5 MULCHES

Free from, noxious weeds, mold, and other deleterious materials.

#### 2.5.1 Wood Cellulose Fiber Mulch

Processed to contain no growth or germination-inhibiting factors and dyed an appropriate color to facilitate visual metering of materials application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 4.0 to 8.5, ash content of 1.6 percent maximum, water holding capacity of minimum 90 percent. Use with hydraulic application of grass seed and fertilizer.

# 2.6 WATER

Suitable quality for irrigation. A source of potable water is located on NTC/Bainbridge, approximately ½ mile from Site 1.

#### 2.7 EROSION CONTROL MATERIALS

Netting or liquid binders.

### 2.7.1 Net

Plastic net, biodegradable paper fabric with knitted yarns, or standard weave burlap.

# 2.7.2 Vegetable Based Gels

Physiologically harmless, without phytotoxic or crop damaging properties, naturally occurring powder based hydrophilic additives formulated to provide gels which will form membraned networks of water insoluble polymers within 4 hours after application.

# PART 3 EXECUTION

#### 3.1 PREPARATION

# 3.1.1 Topsoiling

Immediately prior to placing topsoil, scarify subgrade to a 2-inch depth for bonding of topsoil with subsoil. Spread topsoil evenly to a minimum depth of 6 inches. Do not spread topsoil when frozen or excessively wet or dry. Correct irregularities in finished surfaces to eliminate depressions. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.

#### 3.1.2 Fertilizer and Lime

Apply liquid fertilizer to the landfill cap in amounts sufficient to promote the specified stand of turf. The lime application rate must be sufficient to meet minimum turf ground cover requirements. Lime may be applied at the time of the mobilization for hydroseeding, but prior to and separate from all other material applications.

In disturbed areas outside the landfill cap, lime must be applied in one of two ways: 1) As a liquid to the ground surface; or, 2) Dry, pulverized lime mixed into the top 3 inches of the ground surface using a disc harrow, followed by a rake.

Manufacturer certification of lime content and application rate must be provided.

# 3.1.3 Hydroseeding

Mix seed and fertilizer on site. Apply immediately without interruption.

# 3.2 SEEDING

# 3.2.1 Seed Application

Apply seed uniformly with approved hydroseeding equipment on a firm and moist seed bed. If seeding is done during spring, fall, or winter season, apply designated seed mixture for the area (specified elsewhere in this section) at the rate of 80 pounds per acre. For seeding in the summer season, apply designated seed mixture for the area at the rate of 80 pounds per acre, plus an additional 3 pounds per acre of Weeping Lovegrass. To provide for red clover germination, an inoculant must be applied with the hydroseed mixture at ten times the manufacturer's recommended rate.

#### 3.2.2 Fertilizer and Lime

Apply fertilizer at rates not to exceed:

Nitrogen - 100 pounds per acre total of soluble nitrogen

Phosphate - 200 pounds per acre P<sub>2</sub>O<sub>5</sub>

Potassium - 200 pounds per acre K<sub>2</sub>O.

Apply lime at rate of 4,000 pounds per acre maximum, unless otherwise indicated by topsoil test results.

### 3.2.3 Irrigation

If soil moisture is deficient, supply new seedings every 3 to 4 days with adequate water for growth until turf is established (½- to 1-inch height).

#### 3.2.4 Mulch and Tackifier

Spread straw mulch evenly at the minimum rate of 3,000 to 4,000 pounds dry weight per acre. Mix wood cellulose fiber with water at a minimum rate of 25 pounds of fiber to 100 gallons of water. Vegetable-based or other types of tackifiers are to be applied as necessary to stabilize both the straw and ground surface. The use and application rate of a tackifier must be sufficient to assure minimum turf cover requirements.

#### 3.2.5 Turf Establishment Period

Install in accordance with manufacturer's instructions.

# 3.3 PROTECTION OF TURF AREAS

Immediately after turfing, protect area against traffic and other use.

#### 3.4 RESTORATION

Restore to original condition existing turf areas which have been damaged during turfing operations. Keep vehicular access routes clean at all times.

#### 3.5 TURF ESTABLISHMENT PERIOD

# 3.5.1 Period Parameters

Turf establishment period will be in effect until turf has been mowed three times.

# 3.5.2 Maintenance During Turf Establishment Period

#### 3.5.2.1 Mowing

Mow turfed area to an average height of 4 inches, one to three times per year as directed by client and/or contractor; until accepted.

# 3.5.2.2 Promotion of Turf Growth

Mow, remove excess clippings, eradicate weeds, water, fertilize, overseed, and perform other operations necessary to promote turf growth.

# 3.6 FIELD QUALITY CONTROL

# 3.6.1 Final Inspection and Acceptance

Final inspection will be made upon written request from the Contractor at least 10 days prior to the last day of the turf establishment period. Final acceptance will be based upon a satisfactory stand of turf.

# 3.6.2 Replanting

Replant within specified planting dates areas which do not have a satisfactory stand of turf. Satisfactory stand of turf is hereby defined as having established 90 percent ground cover. A stand having 40 percent to 84 percent established ground cover shall be overseeded and fertilized using one-half of the rates originally applied. For stands having less than 40 percent ground cover, reestablish following original requirements for fertilizer, lime seedbed preparation, and seeding.

- END OF SECTION -

# APPENDIX C CERTIFICATIONS AND WARRANTIES



# APPENDIX D SUBMITTAL REGISTER

# BUBMITTAL REGISTER Project Tife:Remedial Construction Activities Navy Bass:Naval Training Center. Bainbridge, City:Port Deposit, State:MD

Delivery Order 0014

Project Number 16006

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42		Volume Calculations	L.1.2a	G			Monthly				<u> </u>	l				Submitted with monthly report
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7¢	<u> </u>	Initial Equipment Delivery Schedule	1.4	9		N/A	N/A		ļ		-	ļ	N/A	<b></b> _		-   . <del></del>
74	<u> </u>	Updated Equipment Delivery Schedule	1.5	G	.	N/A	N/A		.		-1	<u> </u>	N/A	<u> </u>	. <b> </b>	-l
	01100	SD-10, TEST REPORTS	<u> </u>		<u> </u>	<u> </u>	<b></b>	<u> </u>	<u> </u>	<u> </u>	-	ļ	<u> </u>	<b> </b>	<u> </u>	<u> </u>
82		Off sate Soils Test Reports	1.2.1	<u> </u>	L	<u> </u>	04/12/95	l	.}	<u> </u>		<u> </u>	<u></u>		<b>}</b>	-{
9	01400	SD-18, RECORDS	<b>.</b>	<u> </u>	<u> </u>		<u> </u>	\	.\	<u> </u>	- <b>-</b>	<u> </u>	<u> </u>	<b>!</b>	· <b>i</b>	
92		Quality Control Plats	1.2.2	<u>a</u>	<u> </u>	Ler.	05/05/94			05/05/94	- <b> </b>	ļ	A	<u> </u>	.	_ <u></u>
10	01400	SD-18, RECORDS	l	<u></u>			<u> </u>			<u> </u>		ļ	L	<del> </del> _	·	<u> </u>
10a		Combined Production /CQC Reports	1.3a	G	1	<u> </u>	Daily	1		·		ļ	<u> </u>	↓	ļ	<u></u>
106	<u> </u>	Testing Plan & Log	1.30	<u> </u>	<u> </u>	<u> </u>	Monthly	<u> </u>	<u> </u>	·		ļ		<u> </u>	. <u> </u>	<u> </u>
10c		Monthly Field Test Summary	1.34	G			Monthly		J			1		L		
104		CQC Meeting Minutes	1.30				As reg'd	i				.l				
10e		Rework tems List	1.34	g	_L	1	As regid	1				i	<u></u>			
11		SD-13, CERTIFICATES			.L			<u></u>				]				
<u>IJa</u>	01400	Laboratory Certification	1121	G		N/A	N/A	l			-1	1	N/A	<u> </u>		Un approved Navy list
Пр		Laboratory Certification of Accrediation	113.3	G		N/A	N/A				_1		N/A			
He		Completion Certification	1133	G			07/14/95									w/Closeout Report
12	01450	SD-18, RECORDS					<u> </u>	<u> </u>	1							
í Za	1	Contractor Site Safety Plan	1.2 (	g		i.tr.	05/05/94	L		05/05/94	_ [		A		·	-l
13	01560	SD-08, STATEMENTS			_L					1						
13a		Class 1 OBS Protabation	13.14	G		N/A	N/A		_				N/A			Not redit bet contract
13b	1	Environmental Protection Plan	13.16	O	T	į.tr.	05/05/94	I		05/05/94		I	Λ	1		
136	1	Precon Environmental Survey	23.16	G		N/A	N/A	1	1	T		1	N/A	T		

	<del></del>	SD No., and Type of Submittal						Co	ntractor Actio	on .		Approving Au	thority Action	,	Contractor	
	ŀ	:	.	Classification: Approval						Date Forward to Approved					I (siled	
	ľ	, 1		by	_				_	Authority/	Data	Date			Contractor/	
Submitter	Spec Section	Material or Product	Spec Para	Contracting Officer	Or A/E	Transmittal Control	Planned Substitut	Action	Date of	Date Received Form	Forwarded to other	Received from other	Action	Date of	Receiv <b>ed</b> Livia Approved	Remarks
No.	No (a)		No (e)	(4)	Reviewet (e)	No.	Date (g)	Code (h)	Adion	Contractor (i)	Reviewer (k)	Reviewer (D	Code (m)	Action (a)	Authority (a)	(p)
				(4)	(6)	- "'			(1)	— <u>W</u>	(4)		(m)	(4)	- ""	<u> </u>
13		SD-08, STATEMENTS, CONT					65:05:04			00.0504				<del>                                     </del>		
134		Safety Plan	1.3.14	G		Ltr.	45/05/94	<u> </u>		05/05/94			<u> </u>	\	\'	
130		MSDS Reports	1.3.16	G	ļ	N/A	w/\$afety Plan	<b> </b>		<del> </del>			<u> </u>	<del> </del>	<b>}</b>	ļ
14		SD-18, REPORTS	<b>├</b> · <b></b>					l								
143		As-Built Drawings	1.1.1	G			67/14/95			<del> </del>					·	w/Close Out Report
146		As-Bush Record of Material	1.3.2	G		N/A	N/A	\-—					NIA	<b>}</b>		
<u> 4c</u>		Posted Warranty Information	1.2.1	G	ļ	<b> </b> -	67/14/95	<u>-</u>			ļ	ļ		<b></b>	-	w/Close Out Report
144		Equipment/Product Warranty List	1.3.1	G		N/A	N/A	ļ ———	<b> </b>			<b> </b> -	N/A	<u> </u>		<b> </b>
15	01730	SD-19, O&M MANUALS	1.3	G			07/14/94			i						w/CloseOut Report
16	02055	SD-12, FIELD TEST REPORTS	L		\			·				\		<b></b>		
164		l'esi Data	1.4.1a	G			05/01/95							ļ	.	
17	02055	SD-18, RECORDS			ļ	<u></u>		l						ļ	.	
172	[	Correspondence	1.4.2a	G		N/A	N/A		<u> </u>	<u> </u>		<u></u>	N/A		<u> </u>	
17b	,	Work Plan	1.4.2c	G	[	Lu.	05/05/94	1	·	05/05/94	_	l	A	\	\ <u>.</u>	\
17c		Sampling & Analysis Plan	1.4.2d	G	I	Ltr.	05/05/94			05/05/94			Α			
174		Testing Laboratory Qualitications	1.4.2¢	G			See Item I I a								1	
174		Gov't QA Labatiny Qualifications	1.4.20			N/A	N/A						N/A			
176		DDW Documentation	1.42.8	G	T	N/A	N/A		-	Ţ	]	]	N/A	}	}	
178	[	Draft & Final Field Reports	1.4.2h	G			07/14/95			T					1	w/Close Out Report
18		SD-12, FIELD TEST REPORTS					Γ									
184		Field Reports	3.9.1	G			Monthly							1		w/Close Out Report
19	02102	SD-14, SAMPLES								1	·		\		1	
192		Tree Wound Paint	1.2.1	G	j	N/A	N/A	]	1	1	J	ļ	N/A	<del>                                     </del>	1	1
20	02102	SD-18, RECORDS	1		<b></b> _		1			<u> </u>	I			-	-	<del></del>
20a		Speils Disposition Location	1.2.2a	G		N/A	N/A						N/A		1	
21	02220	SD12, FIELD TEST REPORTS	1		ļ — —	t			<del> </del>		l	1	<del> </del> -	<del> </del>	1	\
210		Fill & Backfull Tests	1.3.1a	G		<del>                                     </del>	05/10/95			1		<u> </u>	<u> </u>		-	<del></del>
21b		Select Material Test	1.3.16	G			05/10/95		<u> </u>				<b> </b>			
21c	l	Deasity Test	1.3.1¢	G G	f	†	Daily	{	<del>                                     </del>	f		<del>-</del>	1	- <del> </del> -	-1	-
22	02276	SD-02, MFG's CTALOG DATA	1.5	ţ <u>-</u>	<del>                                     </del>	<del> </del>	Daily	1	<del>                                     </del>	1	l	· \	<b>†</b>	<del>                                     </del>		\
212	1.212.5	Filter Fabric	1.3.1a	G		N/A	N/A				l ———	····	N/A	<del></del>	1	Dejeted from contract
22b		Teamre HDPE Cap	1.3.1b	_ G	<del> </del>	001	10/12/94		<del> </del>	10/12/94	[	†	A -	-	-	received north contract
22c	·	Texture HDPE Cap	1.3.16	1	·}	A100	10/19/94	J	<del> </del> -	10/19/94	<b> </b>		1	<del> </del> -		-J
<del></del>	<u> </u>	·		<u></u>	·	001A	<del></del>		<del>                                     </del>	10/19/94	·	_	<del></del>		-	
22d	<b></b>	Synthetic Dramage Layer Composite	1.3.1¢	<u> </u>	· <del> </del>		10/12/94	I	<del> </del>	<del> </del>			<u> </u>	- <del> </del>	-	
226	<del> </del>	Synthetic Dramage Layer Composite	1.3.1c	<u>G</u>	- <del> </del>	001A	10/19/94	I	<del> </del>	10/19/94	ļ·——	<del> </del>	<del></del>	+	-	
23	02276	SD-4, DRAWINGS		<del> </del> -	· <del> </del>		<del> </del>			<del> </del>	I	<del> </del>	<del> </del>		-   ~	
23a	<del> </del>	Textrued HOPE Cap Proposed Layout	1.3.2a	<u> </u>	-}	N/A	N/A	J	· <del> </del>	<del> </del>	·	<del>                                     </del>	N/A		-	-]
24	02276	SD-06, INSTRUCTION		<del> </del>	·	<del> </del>	<del> </del>			<b></b>	I	·	<del> </del>	-		
242	<del> </del>	Filler Fabric	1.3.3a	<u> </u>	<del> </del>	N/A	N/A		<del>-</del>			ļ	N/A	<del> </del>		Deleted from contract
24b	<u></u>	Textured HDPE Cap	1.3.3b	<u>l                                      </u>	L	001	10/12/94	1	J	10/12/94	.l	. L		<u>. J</u>	_1	

Page 2 of 4

		SD No., and Type of Submittal			, , , , , , , , , , , , , , , , , , ,		1	Co	ntractor Acti			pproving Au	hority Action		Contractor	
Submittal No	Spec Section	Material of Product	Spec Para No.	Chesification Approval by Contracting Officer	Government of A/E Reviewer	Transmittal Control No.	Planned Submittal Date	Action Code	Date of Actors	Date Forward to Approved Authority/ Date Received From Contractor	Date Forwarded to other Reviewer	Date Received from other Reviewer	Action Code	Date of Action	Mailed to Contracted/ Received from Approved Authority	Remarks
(2)	(a)	(b)	(c)	<u>(a)</u>	(e)	(0)	(g)	(6)		0)	(10)	0	(iii)	(9)	(0)	(b)
240	02276 con't.	Textured HDPE Cap	1.3.3.b	<u> </u>		001A	10/15/94			10/19/95		l		<del></del>		
244		Synthetic Drainage Layer Composite	1.3.3.c	<u> </u>		001	10/12/94			10/12/94			▲			
24s		Synthetic Drainage Layer Composite	1,3,3 €	G	ļ	001A	10/19/94	ł	ļ	10/19/94		<del> </del>	A	<b></b>	ł	
25	02276	SD-12, FIELD TEST RI-PORTS										i				
25a	ļ	Testured HDPE Cap	1.3.4a	<u> </u>		010	6/22/95	l				<b> </b>		<del> </del>	l	
26	02276	SD-13, CERTIFICATES	ļ				ļ	] <u></u>	<b> </b>					<del> </del> -		
26a	<b>}</b>	Filter Fabric	1.3.5.a	G_	<del>                                     </del>	N/A	N/A	]	<del>  -</del>			<del>}</del>	N/A	<b></b>	]	Delete from contract
26b	<b> </b>	Testured HDPE Cap	1.3.56	G_		005A	04/07/95	ľ	ļ	04/27/95	<b></b> -		<u> </u>	<del> </del>	Í	[
26¢	<u> </u>	Synthetic Drainage Layer Composite	1.3.5c	G_		005A	04/07/95			04/27/95				<u></u>		
26d_		Barrier Soit Cayer	1.3.54	G	<b></b>	N/A	04/07/95				\	\	N/A	<b>}</b> _	\	see item 45a
26e	<del> </del>	Gas Venting Sand	1.3.5.€	g _	ļ	N/A	N/A	<b> </b>	<b> </b>	<del> </del>	<u> </u>	ļ	N/A	<del> </del> -		Deleted from contract
27	02776	SD-14, SAMPLES			ļ	<u></u>				<del> </del>			<u> </u>	<b> </b>		
272	<del>  </del>	Filter Fabric	1.3.61	<u> </u>	ļ	N/A	N/A	(	<u> </u>	ļ	[	(	N/A	<u> </u>	[	Deleted from contract
27b		Textured HDPE Cap	1.3.6b	G	ļ	002	10/12/94		ļ	10/12/94	ļ	<b></b>	Α	ļ	<b>-</b>	l
27c	<u> </u>	Synthetic Drainage Layer Composite	1.3.6c	<u>G</u> _	ļ	002	10/12/94			10/12/94			A		I	
28	02276	SD-13, CERTIFICATES	ļ	<u> </u>		<del></del>			L	<b>↓</b>		·		l	l	l
28a	<u> </u>	Migr's Qualifications	1.3.7.a	6_	<b></b> _	001	10/12/94	1	<b>}</b> _	10/12/94		<b></b>	λ	ļ	<u> </u>	
28b	.	Installer Qualifications	1.3.7.b	G	Ĺ	001	10/12/94	[	<b></b>	10/12/94			A		l	
28c		Inspector Qualifications	1.3.7.c	G	ļ	003	03/20/95	ļ <u></u>	ļ	03/20/95		ļ <u>.</u> _	Α	ļ		ļ
29	02720	SD-02, MFG'S CATALOG DATA	<u> </u>				<b> </b>	I	<u> </u>	<u> </u>		<b>↓</b>		<u> </u>	\	
29a		Corrugated Steel Pipe	1.3.1.a	G		N/A	N/A			<u> </u>			N/A	<u> </u>	l	
30		SD-04, DRAWINGS	1	<u></u>	ļ	ļ		J		ļ	<b>]</b>	<u> </u>	ļ	<u> </u>	l	<u> </u>
30a	<u> </u>	Motal Itema	1.3.2.a	G		N/A	N/A	1	<u> </u>	ļ <u>.                                    </u>	<b>.</b>	<u> </u>	N/A		l	
31	02720	SD-13, CERTIFICATES	<u> </u>	<u> </u>		Ì		]	<u> </u>	<del> </del>	.]	·\		<u> </u>	]	
31a		Pipe line	1.3.3.a	G	<u> </u>	N/A	N/A		ļ	<b></b>		ļ	N/A	<u> </u>		
31Ъ		Cast Iron Frames, Covers & Grating	1.3.3.b	<u> </u>		N/A	N/A		<u> </u>				N/A		.	
32	02720	SD-14, SAMPLES	ļ	<del></del>	<del> </del>		<u> </u>	.} <u> </u>		<del> </del>		<del>}</del>	<del> </del>	<u> </u>	.}	<u> </u>
32a		Rip-rap	1.3.42	G	ļ	N/A	N/A	.]	<u> </u>	- <b> </b>			N/A		.l	
33	02831	SD-02, MFG'S CATALOG DATA		<u> </u>	ļ		ļ						ļ	ļ		
33a	<b></b>	Chain-link Fencing Components	1.2.1.a	G	<del> </del>	009	06/15/95			ļ		<u> </u>	l	.l		
33ъ		Accessories	1.2.1.b	<u> </u>	<u> </u>	009	06/15/95		<u> </u>		.		ļ		.	
34	02831	SD-06, INSTRUCTIONS	<b></b>	<b> </b>	↓	<u> </u>	ļ		ļ		l	_	l	<u> </u>	.	
34a		Fence	1.2.2.	G	<u> </u>	N/A	N/A	<u> </u>		.	<b></b>	<u> </u>	N/A			
34b		Extention Arms	1.2.2b	G	<u> </u>	N/A	N/A		<u> </u>		·		N/A			
34c		Posts	1.2.2.c	G	L	N/A	N/A	.]					N/A			
34c	02831	Braces	1.2.2.d	G		N/A	N/A	]					N/A			
35	1	SD-10, TEST REPORTS	1		{	[	[	(	{		(					
35a		Zinc Coating	1.2.3.2	G		N/A	N/A						N/A			
35b	02831	Aluminum Alloy Coating	1.2.3.b	G	1	N/A	N/A			1			N/A	]		

		SD No., and Type of Submittal						Ćc	ntractor Actio	on.	٨	pproving Au	thority Action		Contractor	
Submittal No	Spec Section No	Material or Product	Spec Pura No	Classification Approval by Contracting Officer	Government or A/E Reviewer	Transmittal Control No.	Planned Subtrett al Date	Adioa Code	Date of Action	Date Forward to Approved Authority Date Received From Coultractor	Date Forwarded to other Reviewer	Date Received from other Reviewer	Action Code	Date of Action	Maior to Contractor/ Received Iron: Approved Authority	Remarks
(a)	(a)	(6)	<u>(c)</u>	(4)	(e)		(g)	(6)	0	θ	(6)	<u>m</u>	(m)	(a)		<u> </u>
	02831, con't	SD-13, CERTIFICATES	1												lI	
36 <u>a</u>		Fabric	1.2.4a	G		N/A	N/A						N/A		I	
36b	<u> </u>	Posts	1.2.4b	G	- <del>-</del>	N/A	N/A						N/A		l ——	
36c	<b></b> _	Braces	1.2.4.c	G		N/A	N/A						N/A			
364		Framing	1.2.4.d	G		N/A	N/A						N/A	·· · · · ·		
36e	<b>├</b> ──-	Rails	1.2.4.€	G	ļ <u> </u>	N/A	N/A		<u> </u>		·		N/A		<u> </u>	
36f		Tension Wires	1.2.4.	<u> </u>		N/A	N/A						N/A		l	
36g	ļ	Barbed Wire	1.2.4.0	<u>G</u>	ļ	N/A	N/A						N/A	<u> </u>	l ——I	
36h		Supporting Arms	1.2.4.4	<u> </u>		N/A	N/A		ļ			<u> </u>	N/A	<b></b>		<del> </del>
37	02930	SD-02 MFG;S CATALOG DATA				<b></b>									]	
37a	ļ	Erosion Control Materials	1,3.1.8			908	04/17/95	A	05/22/95	05/22/95		ļ		ļ	II	
37b		Wood Cellulose Fiber Mulch	1.3.1.4	<b></b>	ļ <u></u>	008	C4/17/95	. <u>A</u>	05/22/95	05/22/95						
38	02930	SD-10, TEST REPORTS	ļ		<b> </b>	ļ		<b>-</b> -	ļ			ļ			·	- <del></del>
382	ļ <del></del> .	Topsoil Composite Tests	1.3.2.a	G	ļ	007	05/08/95			04/27/95			Α		ll	
39	02935	SD-18, RECORDS					L	ļ							l	
39 <sub>a</sub>	<u> </u>	Hazardous Waste Manifests	1.2.10	<u> </u>	ļ		As regid				l <u></u>					
396	ļ	Condition of Trucks	1.2.1b	G			As req'd						l <u>.</u>			
39c	<u> </u>	Transportation Information	1.2.1c	G			As regid				l				l	
40	02940	SD-18, RECORDS		<u> </u>	<u> </u>	<u></u>		l								
40a	<u> </u>	Off-site Disposal Plan	1.2.1.a	G	<u> </u>	<u></u>	As reg'd									
406	I	Letters of Commitment	1.2.1b	G			λs reg'd				1					
41	03302	SD-13, CERTIFICATIONS														
41a		Cement	1.2.1.a	G	i	N/A	N/A						N/A			
41b		Aggregates	1.2.1.b	G		N/A	N/A	I					N/A			
410		Admixtures	1.2.1.6	G		N/A	N/A						N/A			
414		Reinforcement	1.2.1.4	G		N/A	N/A	1					N/A			
410	1	Expansion Joint Filter	1.2.1.6	G		N/A	N/A	1	T		1		N/A	l — —		
416		Joint Sealant	1.2.1.f	G		N/A	N/A	1	1	1		1	N/A	İ		
42	05100	SD-13, CERTIFICATES	T				Τ	]	1	1	]	1	T	1		
422		Final Cover Layer	1.2	G	1	006	04/27/95	1		04/27/95			Α	T	1	
42b	1	Barrier Soil Luyer	1.2	G		006	04/27/95	1		04/27/95	i		<u> </u>	†		
43	05300	SD 13, CERTIFICATE				1	† · · · · · ·	1	I	1 27.27.7		1	<del></del>	<del>                                     </del>	1	· · · · · · · · · · · · · · · · · · ·
43a		Aggregate	2.1	1	Ĭ	011	05/22/95	Α	05/22/95	05/22/95	1		1	<del></del>		
44	N/A	Contractor Closeout Report	N/A			1	06/19/95	- <del>-:</del>	1	1 22.2		<b> </b>	<del>                                     </del>	l —	·	· · · · · · · · · · · · · · · · · · ·
45	N/A	Site Audit Report	N/A	1	<b>†</b>	012	06/19/95	ļ ·	<b>†</b>	†··		1		<del> </del>	1	
77	<del> </del>	and trade trades		<u> </u>	<b></b>	1	1 223	1	1	<b> </b>	1	1	1	1	<u> </u>	·
	<del> </del>	<b>+</b>	· <del> </del>	<u> </u>	1	1	<del> </del>	1	† · · · · ·	<del> </del>	l	-	<del> </del>			
	-1	· · · · · · · · · · · · · · · · · · ·		·			<del></del>	1	NTC Notes:	<del></del>	Action Code	. L	(Others muy b	e prescribed by	Trasmital Form)	I

Approved By: G: Contracting Officer Blank: CQC Manager

NI C NORSE: (CURREN LANGE PRECONSTRUCTION COURSE)
Lift indicases preconstruction NR NoR Reviewed
An Approved as Noted
RR. Disapproved, Review and Resubmit

Page 4 of 4

# APPENDIX E DISPOSAL MANIFESTS AND BILLS OF LADING

BILL OF LADING NO.

19365



Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE ORDER NO;	TELEPHONE NO:	H-3-25
CUSTOMER NAME: Beinholde NAVAL STATE	ACCOUNT NO.	International Petroleum Corp.
ADDRESS: 222		Wilmington De
PORT Deposit Mb		MANIFEST NO:
TIME OF DEPARTURE  TIME OF ARRIVAL AT CUSTOMER  TIME OF DEPARTURE FROM CUSTOMER	8:00 Am: 8:55 A.M. 9:55 Am-	ALLOTTED TIME DEMURRAGE TIME REASON FOR DELAY TRAILET WASH OUT
TIME OF ARRIVAL AT DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE  TOTAL TIME	12:00 p.n.	Acrive DAMA -> 12:15 pm.
MUNICIPAL RAW SEWAGE  INDUSTRIAL SFWAGE SLUDGE COMMERCIAL SEWAGE SLUDGE LEACHATE PRODUCTION WASTE SEPTIC TANK/CESSPOO FOOD PROCESSING	☐ HOLDING TAN ☐ GREASE TRAF ☐ LAGOON/DIG ☐ WET WELL/P L ☐ OTHER	RATE
VOLUME REMOVED: 6018	OTHER	☐ ROLL OFF ☐ DUMP/ TRANSFER TRAILER CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT		MISCELLANEOUS:  EXTRA HOSE FT. PH  LABOR OTHER
MILEAGE: ODOMETER AT DEPAR	TURE 391836	ODOMETER AT DESTINATION
VACUUM TRAILER	OTHER	
Vaul Charle		DRIVER PAME: Robert Levan
DISPOSAL SITE SIGNATURE:		TRACTOR NO: TRAILER NO:

# SPECIAL WASTE MANIFEST

GENERATOR INFORMATION	Manifest No.: 19365			
Disposal Code	Service Date: 4-3-85			
Company Name Bainbridge NAVAI STATEON Address: LT-222 Port Deposit, MD.				
Phone #: Cont	act:			
WASTE TYPE	QUANTITY 6018			
Non-Hazardous Oil and Water	Gallons			
I certify that the above information is coknowledge.	rrect to the best of my			
Date: 4/3/95 Signature:	Youl Land			
Title:	ton Mananels			
EDITORNA INFORMATION				
TRANSPORTER INFORMATION				
REIFSNEIDER TRANSPORTATIO P.O. BOX 48, ROYERSFORD,				
I certify that to the best of my knowledge was transported in compliance with current				
Date: 4/3/95 Signature:	Robert Jevan			
WASTE DISPOSAL INFORMATION				
INTERNATIONAL PETROLEUM CORPORATION OF DELAWARE WILMINGTON, DELAWARE				
Date Waste Received 4/3/195				
Waste Accepted: Ves Waste Re	jected:			
If rejected, reason(s) for rejection:				
I certify that the above waste was deliver for processing and disposal.	_			
Date: 4/3/95 Signature:	Willi-Tell			

196-41258 REV. 1/81

# SPECIAL WASTE MANIFEST

GENERATOR INFORMATION	Manifest No.: 17365
Disposal Code	Service Date: 4-3-95
Company Name Bainbridge Naval Station	
company Name Bainbridge NAVAI STATION Address: RT-222 Port Deposit, MD.	
Phone #:	Contact:
WASTE TYPE	QUANTITY 6018
Non-Hazardous Oil and Water	6-000-Gallons
I certify that the above information a knowledge.	is correct to the Best of my
Date: 4/3/95 Signatu	Ire: Youl & and
Title:	Stature Monanger
TRANSPORTER INFORMATION  REIFSNEIDER TRANSPORT	PATION INC.
P.O. BOX 48, ROYERSFO	
I certify that to the best of my knowl was transported in compliance with cur	
Date: 4/3/95 Signati	ire: Notest Auran
WASTE DISPOSAL INFORMATION	
INTERNATIONAL PETROLEUM C WILMINGTON, DELAWARE	CORPORATION OF DELAWARE
Date Waste Received 4/3.195	
Waste Accepted: Wast  If rejected, reason(s) for rejection:	ce Rejected:
I certify that the above waste was del for processing and disposal	ivered to this disposal facility
Date: 4/3/95 Signatu	ire: [][]

196-41258 REV. 1/81

# eifsnelder Atransportation inc

BILL OF LADING NO.

17506

An Environmental Services Firm
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE ORDER NO: TELEPHONE NO:	DATE: 11-9-94
CUSTOMER NAME: ACCOUNT NO.	1-4419 11-9-94 DISPOSAL SITE:
Bajabridge Naval Starton	International terroleum Co.p.
ADDRESS:	MANUFEST NO: Iming to A DE
D. 1	MANIFEST NO:
For Deposit, M.	~/A
TIME OF DEPARTURE	ALLOTTED TIME
TIME OF ARRIVAL AT CUSTOMER	
TIME OF DEPARTURE FROM CUSTOMER	
TIME OF ARRIVAL AT DISPOSAL SITE	- Pump 3- underground TANKS
TIME OF DEPARTURE FROM DISPOSAL SITE	
TOTAL TIME 8.14 Hes.	
☐ MUNICIPAL ☐ RAW SEWAGE ☐ HOLDING TO	_ ,, _,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MINDUSTRIAL GREASE TR	
COMMERCIAL LEACHATE LAGOON/E	
	PUMP STATION
SEPTIC TANK/CESSPOOL SOTHER	Dily WARC'S - NON HAZARDOVS
VOLUME REMOVED: 4453	ROLL OFF DUMP/ TRANSFER TRAILER
SALLONS OTHER	CONTAINER SIZE: 10 20 30 OTHER
WEIGHT:	MISCELLANEOUS:
GROSS WEIGHT LBS.	EXTRA HOSE FT. PH.
TARE WEIGHT LBS.	LABOR
NET WEIGHT LBS.	OTHER
ODOMETER AT DEPARTURE 369 699	ODOMETER AT DESTINATION 369788
VACUUM TRAILER	
NOTES/INSTRUCTIONS:	
Billing to - OH MATOINS	
200 Harizon Cento Blo	<b>J</b> ,
TIGHON, NJ, 08650	
	• *
CUSTOMER SIGNATURE:	DRIVER NAME:
hant Zeden	ROLOT LOVEN
DISONSAL SITE SIGNATURE	TRACTOR NO: TRAILER NO:
11 ullian The	421 11-29

6

<b>\$</b>	발생: - 선
SPECIA	C WASTE HANGETST
GENERATOR INFORMATION	Manifest No.: 12504
Disposat Code	Service forc: 11-9-94
Company Name Bandbridge	Naval Station
Address: POT Dyposit Phone #: 410-375-4415	- Md. Contact: Ed Stoliz
racing #. 410 - 5/7 - 14/5	,
XASTE TYPE	→ 40AB CATV 7
Non-Bakardon: Oily War	6,500 GALLON.
I cortify that that the about my knowledge	ove information is correct to the best
Pares 11/9 /94	ritte: APM
	rille MA
ence oversentency that it is a contract to the	
	OFR TRANSPORTATION (160) 45, POYFRSPORD, PA 1946;
	of my knowledge the waste deverthed compliance with current applicable.  Signature: Robert Jevan
nuausus reamnor annuar annuar an WASTE DISPOSAL INFORMATION	ವಹ್ಯ ಕಟಹುಮಹಾರು ಹಾರವರ್ತ ನಿವಾಗಿ ಸಹುಪ್ಪರ ಸಹಗಳ ಗಳ ಗರ ಸಂಪರ್ಕಾರ ಕ
INTERNATIONAL PETRO	LEUN CORPORATION OF DELAWARE
WILMINGTON. DELAWAR	ī:
hate Waste Received / / /	
Whate Accepted:	wante Rejected.
If rejected, reason(s) for	rejection:
t certify that the above o	waste was delivered to this dispose

tasifity for processing and disposal.

BILL OF LADING NO.

17507

# elfsneider Lizansportation inc

An Environmental Services Firm
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

ļ !	CHASE ORDER NO:	410- 378	- 4419 PATE: 11-9-94
Bainh:	the Naval Re	410-378	DISPOSAL SITE:  TATOMATIONAL POTTOLEUM COLP
ADURESS:			MANUEST NO.
Port	Deposit M	1	MANIFEST NO:
TIME OF DEPARTS	URE	1:15 p.m. 2:00 p.m. 3:10 p.m.	ALLOTTED TIME J-HR.  DEMURRAGE TIME  REASON FOR DELAY PLANT LINES TIMES
TIME OF ARRIVAL	AT DISPOSAL SITE URE FROM DISPOSAL SITE	3:55 pm. 5:15 pm.	TOTAL STATE OF THE
MUNICIPAL INDUSTRIAL COMMERCIAL RESIDENTIAL	☐ PRODUCTION WASTE ☐ SEPTIC TANK/CESSPOO ☐ FOOD PROCESSING	☐ HOLDING TAN ☐ GREASE TRAF ☐ LAGOON/DIG ☐ WET WELL/P OL OTHER OU	P RATE
VOLUME REMOVE	D: 4378	OTHER	☐ ROLL OFF ☐ DUMP/TRANSFER TRAILER CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT:	ROSS WEIGHT TARE WEIGHT	LBS.	MISCELLANEOUS:  EXTRA HOSE FT. PH.  LABOR  OTHER
MILEAGE:	ODOMÉTER AT DEPAR	RTURE	ODOMETER AT DESTINATION
VACUUM TRAIL	ER	OTHER	
Rilling -	Tons:  D.H. Material  200 Horizon  Trenton, N	Center Bled.	
CUSTOMER SIGNAT	Zeelea	TR -R	TRACTORNO: TRAILER NO:

If rejected, reason(s) for rejection:

If rejected, reason(8) for rejection:

I certify that the above waste was delivered to this disposal facility for processing and disposal.

			7/	. AC	. 00
19641256 FE	v. 1/8∐-ja_1	te:	//:_/	OZI	ZZ
المراود أعط		7.7	16.74		

Signature !

PAYMENTS:

0.00

17509

BILL OF LADING NO.



An Environmental Services Firm P.O. Box 48 519 Royersford Road

Royersford, PA 19468 (610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURC	CHASE ORDER NO:	TELEPHONE NO:	DATE:	L.
CUSTOMER NAM	E: •	410-378-4	14,0 //-/0-9	19
BAINBOL	dge NAUAL Base	2	INTERNATIONAL RETTOL	en Corp.
ADDRESS:			ADDRESS: WilmingTON	Se.
Part	Deposit, M	 'λ	MANIFEST NO:	
	Seposi, in		1-11	
TIME OF DEPARTI		7:00 B.m.	ALLOTTED TIME	_
TIME OF ARRIVAL		12:00 A.M.	REASON FOR DELAY Punging under 9	- 
	JRE FROM CUSTOMER	12:55 pm/	THINKS - WAIT FOR SIG	
	AT DISPOSAL SITE	2100 p.m.		- F- F-1 F-1 F-1
TOTAL TIME	JRE FROM DISPOSAL SITE	7 148:		
		(T)	C COPTAL TO BORTH	
MUNICIPAL	RAW SEWAGE	☐ HOLDING TAN ☐ GREASE TRAP		
₩ INDUSTRIAL  COMMERCIAL		☐ LAGOON/DIG		
	PRODUCTION WASTE	- WET WELL O	IMP STATION	
_ RESIDENTIAL	SEPTIC TANK/CESSPOOL	OTHER O	ily WATE NOW- HAZARDOUS	
	FOOD PROCESSING			
VOLUME REMOVE	D: 42.0			
1	6309		ROLL OFF DUMP/ TRANSFER TRAILER	<b>-</b>
<b>76</b>	GALLONS	OTHER	CONTAINER SIZE: 10 20 30	☐ OTHER
WEIGHT:		<u> </u>	MISCELLANEOUS:	
G	ROSS WEIGHT	_ LBS.	EXTRA HOSE FT. F	Ή,
	TARE WEIGHT	LBS.	LABOR	
	NET WEIGHT	LBS.	OTHER	
MILEAGE:	ODOMETER AT DEPAR	TURE 369944	ODOMETER AT DESTINATION 370028	2
M VACUUM TRAII	ER MC 306 TRAILER	☐ other		
	·			
NOTES/INSTRUC	TIONS:			
Truck o	NASH 2:30 p.m.	to 5:00 pm		
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		,		
		•		
			* * * * * * * * * * * * * * * * * * * *	
CUSTOMES SICAIA	TI IDE		DRIVER NAME:	
CUSTOMER SIGNA	<i></i> ∤ .	- /n		Lamor
POSAL SITE SI	EMATURE:	ernment (See a	TRACTOR NO:	TRAILER NO:
100	11/11		421	VT-29
allean.	TEUST.			<u> </u>

### SPECIAL WASTE MANIFEST

4	иоттанари вотавны		Manifest No.:	17509
•	Risposat Code		Service Date:	11-10-94
,	Company Name BaiNbridge NAMADERS PORT Deposit, Phone #: 410-378-4419		Contact: Bob	BSTOIT2
	WASTE TYPE		Q11.	MA CLA
	Non-Hazardous Oily WATER		6,500	O GALLONS
	I certify that that the above of my knowledge	e information	, is correct to	. The best
1	teates 11/10/94	Signature: Title:	asty 60	See attached
	genes cananameterranticaement PRANSPOPTER INPORMATION	.ಭವರಡ ಶದಲಭವನ್ನನ	្រែដ្ធប្លាប្ទាប់សិខ្ទុកនៃ	្រក្សាបាស្គាលីណា ជី
		R TEANSPORTAT 3, FOVERSFORT		
	t contify that to the best caboves was transported in cregulations. $-\frac{\pi}{\sqrt{1-2}}$	omptinase vi 9	th surrent s	ippfivable
1	Date: 11/10/94	Signature:	Robet Le	van
	vaste 618POSAU INFORMATION	ರ ನಜ್ಞನ್ನು ಬ್ಲಾಫಿ ತಿರಿಕೆ ತಿ	ែងមានជាជាជាជាជាជាជាជាជាជា	:೧೯೯೨೩೩೩೩೩
	INTERNATIONAL PETROLI	CUM CORPORATIO	ON OF DELAWARE	
	WILMINGTON, OFLAWARE			
	Pate Waste Received / / /	, 		
	Waste Accepted:		laste Rejucted:	
	If rejected, reason(s) for re	·jection:		
	I certify that—the above—watacitity for processing and a		ered to His	disposal
196-41258 REV. 1/8		Signature :		The second second

NOV-10-94 THU 12:48

### Reifsneider Transportation inc

BILL OF LADING NO.

17509

An Environmental Services Firm
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURC	HASE ORDER NO:	TELEPHONE NO:	"	DATE:	
		410-378-4	1470	11-10-9	4
CUSTOMER NAME	se Naval Rase	_ ACCOUNT NO.	DISPOSAL SITE:	NA PETROL	con Corp.
ADDRESS!	•		ADDRESS: Wile	MOTON :	∆e.
Port	Deposit, M	۵.	MANIFEST NO:	•	
TIME OF DEPARTU	•	7:00 4-	ALLOTTED TIME	1-WL.	
TIME OF ARRIVAL		9100 A-M	DEMURRAGE TIME		<del>-</del> 
	RE FROM CUSTOMER _			Pumping unders	mand Swage
TIME OF ARRIVAL	AT DISPOSAL SITE		TANKS		<del>-</del>
TIME OF DEPARTA	ire from disposal site 🔔	<del></del>		<del></del>	
TOTAL TIME					
	RAW SEWAGE	☐ HÖLDING TAN		PORTAL TO FORTAL	
COMMERCIAL.		L'AGOON/DIG			
RESIDENTIAL	PRODUCTION WASTE	☐ WET WELL/P  MET OTHER		1- Hazardous	
	SEPTIC TANK/CESSPOO	_ DEFOTHERC	AR CHATTE MON	- 1144-00-5	
	<u> </u>				
VOLUME REMOVE	D:		ROLL OFF DU	up/transfer trales	ı
	500 GALLONS	OTHER	CONTAINER SIZE:		
WEIGHT:			MISCELLANEOUS:		
9	ROSS WEIGHT		LABOR	FT.	PH
Ì	NET WEIGHT		OTHER		
MILEAGE:					
	ODOMETER AT DEPAR	TURE 369944	ODOMETER AT DESTI	NATION 37001	\$
E VACUUM TRAI	LER MC 306 TRAILER	OTHER		<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	· · · · · · · · · · · · · · · · · · ·
NOTES/INSTRUC	TIONS:		_		
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<u> </u>	1			•	
CUSTOMER SIGNA	• •		1	DRIVER NAME:	1
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	en lor			L. P. PANT
MOTOS DESITE SI	MINI WE			TRACTOR NO:	100LER NO:

P. 02

NOV-10-94 THU 12:49

Fax No. O

SPECIAL.	WASTE	MANIFEST

GENERATOR INFORMATION	Manifest No.: 17509
Disposal Code	Service Date: 11-10-94
Company Name Bainbridge Navi Address: Port Deposit, 1 Phone 4: 410-378-4419	
WASTE TYPE	QUANTITY
Non-Hazardous Oily WATER	6.500 GALLONS
I certify that that the above of my knowledge	information is correct to the best
Date: 11/10/94	Signature:
	Title:
TRANSPORTER, INFORMATION	
• :	TRANSPORTATION INC. R. ROYERSFORD, PA 19468
above was transported in co	my knowledge the waste described impliance with current applicable
Date: 11/10/94	Signature: Robet Luan
WASTE DISPOSAL INFORMATION	
INTERNATIONAL PETROLEU	M CORPORATION of DELAWARE
WILMINGTON, DELAWARE	
Date Waste Received//_	
Waste Accepted:	Waste Rejected:
If rejected, reason(s) for rej	sction:
I certify that the above was facility for processing and di	te was delivered to this disposal sposal.

ENGINEERING FIELD ACTIVITY CHESAPEAKE WASHINGTON NAVY YARD **BUILDING 212** 901 M. STREET, S.E. WASHINGTON, DC 20374-5018

### TELECOPY LEAD SHEET

DATE:	Nov 10,1994	
NO. OF PA	GES:	(INCLUDING COVER SHEET)
TO:	BOB STOLZ	·
<b>/</b> *		<del></del>
	415 000 000	
FAX NO.	-410-378-219	14
FROM:		
raugi;		<del></del>
		<del></del>

EFA CHESAPEAKE'S FAX NO. 202-433-6193



Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468

(610) 948-9377 • FAX (610) 948-6090

WEIGHT:  TROOS WEIGHT LBS.  TAGE WEIGHT LBS.  WEIGHT LBS.  THE ROLL OFF DUMP/ TRANSFER TRAILER  CONTAINER SIZE: I 0 20 30 OTHER  MISCELLANFOUS:  EXTRA HOSE FT. PH.  THE WEIGHT LBS.  LABOR  OTHER	Bailbridge Naval Station  Po, Box 244  NANNEEST NO:  SOBO2  THE OF DEPARTURE?  THE OF DEPARTURE?  THE OF DEPARTURE PROM DISPOSAL SITE 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 + 57 have 1:200 pm. REASON FOR DELAY LAS OUT 200 pm. REASON FOR DELAY PM. RATE  COMMERCIAL PRODUCTION WASTE REASON FOR DELAY PM. RATE  COMMERCIAL PRODUCTION WASTE REASON FOR DELAY PM. RATE  COMMERCIAL PRODUCTION WASTE REASON FOR DELAY PM. RATE  COMMERCIAL PRODUCTION WASTE REASON FOR DELAY PM. RATE  COMMERCIAL PRODUCTION WASTE REASON FOR DELAY PM. RATE  COMMERCIAL RAW TO THE REASON FOR DELAY PM. RATE  COMMERCIAL PM. RATE REASON FOR DELAY FOR DELAY PM. REASON FOR DELAY P	USTOMER PUR	CHASE ORDER THE	TELEPHONE NO:	DATE:	0.4
Bailboidge Naval Station  Por Box 244  NANIFEST NO:  IME OF DEPARTURE  IME OF DEPART	Brillocidge Naval Station  Po, Box 244  Nort Deposit MD.  Solo A.M. Allotted time  Sime of departure Site Ann.  Ime of departure Site Ann.  Ime of departure Reason for departure Site Ann.  Ime of departure Room disposal, site Site Ann.  Immediate Room disposal			<u>410-378-</u>	4917 3-14-	74
PO, Box 244    Proposition   P	PO, BOX 244    NANIFEST NO: 50802		-· ·		•	who.
TIME OF DEPARTURE  TIME OF ARROUGH AND DUSTOMER  TIME OF ARROUGH AND OUSTOMER  TIME OF ARROUGH AND OUSPOSAL SITE  TOTAL TIME  MUNICIPAL  AND DUMBE  TOTAL TIME  MUNICIPAL  AND DUMBE  TOTAL TIME   TIME OF DEPARTURE  TIME OF ARRIVAL AF DUSTOMER  TIME OF DEPARTURE TROM CISPOSAL SITE  TOTAL TIME  THE ARRIVAL DUSTOMER  THE HOLDING TANK  PORTAL TO PORTAL  PRODUCTION WASTE  TAGOS TO PROCESSING  TROCS WEIGHT  LBS.  TAGOS WEIGHT  LBS.  LABOR  OTHER  TAGOS WEIGHT  LBS.  LABOR  OTHER  THE MEIGHT  LBS.  TAGOS WEIGHT  TAG	DURES	_		ADDRES	;	
TIME OF DEPARTURE  TIME OF DEPARTURE  TIME OF DEPARTURE  TIME OF DEPARTURE  TIME OF DEPARTURE RAPIM CUSTOMER   TIME OF DEPARTURE  TIME OF DEPARTURE  TIME OF DEPARTURE FROM CUSTOMER  TIME OF DEPARTURE FROM CUSTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF ARREVAGE TUDGE  TIME OF TIME DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE TO DEFEND TO DEPARTURE FROM DISTOMER  TIME OF DEPARTURE TO DEFEND TO DEPARTURE FROM DISTOMER  TIME OF DEPARTURE FROM DISTOMER  TIME OF DEPARTURE TO DEFEND TO DEFEND TO DEPARTURE TO DEFEND TO DEFEND TO DEPARTURE TO DEFEND	10, \$	30x 274		MANIFEST NO:		
TIME OF MERCH ALLE PROMISED BY THE TIME OF DEPARTURE PROMISED SHE STEEL STORE TO SHE SHE SHE SHE SHE SHE SHE SHE SHE SHE	TIME OF ARROW ALL AF DUSTOMER  TIME OF DEPARTURE TROM CUSTOMER  TIME OF ARROWAL AT JUSTICAL SITE  TIME OF DEPARTURE TROM CUSPOSAL SITE  TOTAL TIME  TO	POST	Deposit, ML	)	50802	
TIME OF MERCH ALLE PROMISED BY THE TIME OF DEPARTURE PROMISED SHE STEEL STORE TO SHE SHE SHE SHE SHE SHE SHE SHE SHE SHE	TIME OF ARROW ALL AF DUSTOMER  TIME OF DEPARTURE TROM CUSTOMER  TIME OF ARROWAL AT JUSTICAL SITE  TIME OF DEPARTURE TROM CUSPOSAL SITE  TOTAL TIME  TO	TIME OF DEPART		6:30 A.M.	ALLOTTED TIME	<del></del>
TIME OF DEPARTURE TROM DISPOSAL SITE  TIME OF DEPARTURE TROM DISPOSAL SITE  TOTAL TIME    MUNICIPAL   RAW 10,000   House   Holding tank   Portal to Portal   Production waste   Lagoon/ Digestor     Dential   Production waste   Wet Well/Pump Station     Dential   Production waste   Wet Well/Pump Station     Dential   Production Waste   Other     Taron Processing     Volume refronce:   Roll off   Dump/ Transfer Trailer     Container Size:   10   20   30   Other     Tare weight   LBS.   Extra Hose   FT. PH.     Tare weight   LBS.   Canonical     LBS.	TIME OF ARRIVAL AT JISPOCAL CITE  TIME OF DEPARTURE CROM DISPOSAL SITE  TOTAL TIME    MUNICIPAL   RAW SOLVAND   HOLDING TANK   PORTAL TO PORTAL   PORTAL TO PORTAL   SEWARD SOLVAND   GREASE TRAP   RATE   COMMERCIAL   SEWARD SOLVAND   GREASE TRAP   RATE   COMMERCIAL   PRODUCTION WASTE   WET WELL/PUMP STATION     SEPTIO TANK CESSPOOL   OTHER	TIME OF TRREE	Çar DüşteMER — —	B:45 A.M.		
TIME OF DEPARTURE TROM DISPOSAL SITE  TOTAL TIME  TUZINES  MUNICIPAL  RAW 10,000 THER  HOLDING TANK PORTAL TO PORTAL  RATE  GREASE TRAP RATE  LAGON/Z  LAGON	TIME OF DEPARTURE TROM DISPOSAL SITE  TOTAL TIME  TUZINES  MUNICIPAL  RAW 10.0045  HOLDING TANK PORTAL TO PORTAL  PROTECTION WASTE  LAGOON/DIGESTOR  LAGOON/DIGESTOR  LAGOON/DIGESTOR  LAGOON/DIGESTOR  WET WELL/PUMP STATION  TOTHER  WOLUME REMOVED:  WEIGHT:  ROCS WEIGHT  LBS.  EXTRA HOSE FT. PH.  TARE WEIGHT  LBS.  OTHER  OTHER  CONTAINER SIZE:  LAGOON  LAGOON/DIGESTOR  RATE  PORTAL TO PORTAL  RATE  PORTAL TO PORTAL  PROTECTION  RATE  PORTAL TO PORTAL  PORTAL TO PORTAL  PROTECTION  RATE  RATE  COMMERCIAL  RATE  LAGOON/DIGESTOR  COMMERCIAL  RATE  CONTAINER SIZE:  LO  20  30  OTHER  MISCELLANEOUS:  EXTRA HOSE FT. PH.  LBS.  LABOR  OTHER	TIME OF DEPART	TOPE PROMICUSTOMER		REASON FOR DELAY LAS OUT 200	+ hr hase
TOTAL TIME    MUNICIPAL   RAW NOWARD   HOLDING TANK   PORTAL TO PORTAL     MUNICIPAL   REWARD NUMBER   GREASE TRAP   RATE     COMMERCIAL   LAGONIZ   LAGONIZ   LAGONIZ DIGESTOR     DENTIAL   PRODUCTION WASTE   WET WELL/ PUMP STATION     1SPTING TANK GESSPOOL   OTHER     FOOD PROCESSING     WOLUME REMOVED:   ROLL OFF   DUMP/ TRANSFER TRAILER     CONTAINER SIZE:   10   20   30   OTHER     MISCELLANFOUS:   EXTRA HOSE   FT. PH.     TARE WEIGHT   LBS.   LABOR     MELL WEIGHT   LBS.   OTHER     OTHER   OTHER     CASON WEIGHT   LBS.   OTHER     OTHER   OTHER     OTHER   OTHER     OTHER   OTHER     OTHER   OTHER   OTHER     OTHER   OTHER   OTH	TOTAL TIME    MUNICIPAL   RAW NEWARD   HOLDING TANK   PORTAL TO PORTAL     MUNICIPAL   SEWACD NUDGE   GREASE TRAP   RATE     COMMERCIAL   LAGGON/ DIGESTOR     DENTIAL   PRODUCTION WASTE   WET WELL/PUMP STATION     SEPTIO TANK CESSPOOL   OTHER     FOOD PROCESSING     WOLUME REMOVED:   ROLL OFF   DUMP/ TRANSFER TRAILER     CONTAINER SIZE:   10   20   30   OTHER     TROCS WEIGHT   LBS.   EXTRA HOSE   FT. PH.     TARE WEIGHT   LBS.   LABOR     WEIGHT   LBS.   OTHER     OTHER   OTHER     CASS WEIGHT   LBS.   CABOR     OTHER   OTHER     CASS WEIGHT   LBS.   CABOR     OTHER   OTHER     OT			- T	OFF SITE.	of have
MUNICIPAL RAW SELVAGE HOLDING TANK PORTAL TO PORTAL  MUNICIPAL SEWAGE STUDGE GREASE TRAP RATE  COMMERCIAL LAGOON / DIGESTOR  DENTIAL PRODUCTION WASTE WET WELL/PUMP STATION  DESTRO TANK GESSPOOL OTHER  VOLUME REMOVED:  WEIGHT:  MISCELLANFOUS:  TAGGS WEIGHT LBS. EXTRA HOSE FT. PH.  TARE WEIGHT LBS. LABOR  VEHICLE OF THE PORTAL TO PORTAL  RATE  PORTAL TO PORTAL  PORT	MUNICIPAL SEWACE DUESE GREASE TRAP RATE  COMMERCIAL SEWACE DUESE GREASE TRAP RATE  COMMERCIAL MODIVATE GREASE TRAP STATION  DENTIAL PRODUCTION WASTE WET WELL/PUMP STATION  DESTRO TANK GESSPOOL OTHER  VOLUME REMOVED:  WEIGHT: MISCELLANEOUS:  TROCS WEIGHT LBS. EXTRA HOSE FT. PH.  TARE WEIGHT LBS. CONTAINER  DESTRO TANK GESSPOOL OTHER  FT. PH.  TARE WEIGHT LBS. COTHER  OTHER		TURE TROM DISPOSAL ŠITĒ 🔝	71242	Loading thru Africe 300 ft	or nose.
SEWAGE PLUGGE   GREASE TRAP   RATE	SEWAGE PLUEGE   GREASE TRAP   RATE		Take of their	HOLDING TAN	PORTAL TO PORTAL	
□ COMMERCIAL  □ PRODUCTION WASTE  □ WET WELL / PUMP STATION □ SEPTIO TANK CESSPOOL  □ OTHER □ FOOD PROCESSING  VOLUME REMOVED: □ ROLL OFF  □ DUMP / TRANSFER TRAILER □ CONTAINER SIZE: □ 10 □ 20 □ 30 □ OTHER □ WEIGHT: □ MISCELLANFOUS: □ ROLL OFF  □ DUMP / TRANSFER TRAILER □ CONTAINER SIZE: □ 10 □ 20 □ 30 □ OTHER □ MISCELLANFOUS: □ ROCS WEIGHT  □ LBS.  □ EXTRA HOSE  □ FT. PH. □ CASE WEIGHT  □ LBS.  □ LABOR □ NE : WEIGHT  □ LBS.  □ CTHER	COMMERCIAL	MOUSTRIAL	E SEWACE THUE'GE			
DENTIAL PRODUCTION WASTE WET WELL/PUMP STATION    SEPTIC TANK CESSPOOL	DENTIAL PRODUCTION WASTE WET WELL/PUMP STATION  DESPTICIONAL CESSPOOL OTHER  DESPTICIONAL CESSPOOL OTHER  PRODUCTION WASTE WET WELL/PUMP STATION  DISPTICIONAL CESSPOOL OTHER  PRODUCTION WASTE WEIGHT CONTAINER SIZE: DUMP/TRANSFER TRAILER  CONTAINER SIZE: DIO DO DO OTHER  MISCELLANEOUS:  EXTRA HOSE FT. PH.  MARE WEIGHT LBS. LABOR  DEL WEIGHT LBS. OTHER		<b>.</b> .	LAGOON/DIG	ESTOR	
VOLUME REMOVED:  C_SCO_ALLONSOTHER	VOLUME REMOVED:  C_SCO_ALIONS			WET WELL/P	JMP STATION	
VOLUME REMOVED:  C SCO HLEONS OTHER  OTHER  OTHER  OTHER  OTHER  IROSS WEIGHT LBS.  DASS WEIGHT LBS.  LABOR  WEIGHT LBS.  OTHER  OTHER	VOLUME REMOVED:  C 500 ALIONS OTHER  OTHER  ONTAINER SIZE: I 0 I 20 I 30 I OTHER  WEIGHT:  MISCELLANFOUS:  EXTRA HOSE FT. PH.  TARE WEIGHT LBS.  LBS.  LABOR  NE WEIGHT LBS.  OTHER	*	I DERTHO TANK CESSPOOL	OTHER		
WEIGHT:  TAGGS WEIGHT LBS.  TAGE NEIGHT LBS.  THER  TOTHER  TOTHER  TOTHER  THE NEIGHT LBS.   ROLL OFF DUMP/ TRANSFER TRAILER  CONTAINER SIZE: 10 20 30 OTHER  WEIGHT:  MISCELLANFOUS:  EXTRA HOSE FT. PH.  TARE NEIGHT LBS.  DEL WEIGHT LBS.  LBS.  OTHER		FOOD PROCESSING				
WEIGHT:         OTHER         CONTAINER SIZE:         10         20         30         OTHER           WEIGHT:         MISCELLANEOUS:         EXTRA HOSE         FT. PH.           TARE WEIGHT         LBS.         LABOR	WEIGHT:         CONTAINER SIZE:         10         20         30         OTHER           MISCELLANEOUS:         MISCELLANEOUS:         FT. PH.         PH.           MARE WEIGHT         LBS.         LABOR         FT. PH.           ME: WEIGHT         LBS.         OTHER	VOLUME RELIG	960:			
WEIGHT:         MISCELLANEOUS:           TARCOS WEIGHT         LBS.         EXTRA HOSE         FT. PH.           TARE WEIGHT         LBS.         LABOR           MEILWEIGHT         LBS.         OTHER	WEIGHT:         MISCELLANEOUS:           TARCOS WEIGHT LBS.         : EXTRA HOSE FT. PH           TARE WEIGHT LBS.         LABOR           ME: WEIGHT LBS.         OTHER	$\wedge$	500		·	
WEIGHT:         MISCELLANEOUS:           TARCOS WEIGHT         LBS.         EXTRA HOSE         FT. PH.           TARE WEIGHT         LBS.         LABOR           MEILWEIGHT         LBS.         OTHER	WEIGHT:         MISCELLANEOUS:           TARCOS WEIGHT LBS.         : EXTRA HOSE FT. PH           TARE WEIGHT LBS.         LABOR           ME: WEIGHT LBS.         OTHER	.ط	POW LALLONS	R3HTC	CONTAINER SIZE: 10 20 30	
TARE WEIGHT LBS. LABOR  DE: WEIGHT LBS. OTHER	TARE MEIGHT LBS. LABOR MEI MEIGHT LBS. OTHER					
MEL WEIGHT LBS. OTHER	ME: WEIGHT LBS. OTHER					PH
MILEAGE: 20069 389/57	MILEAGE: 289/15%		IE VEIGHT	LBS.	<del></del>	
ODOMETER AT DEPARTURE OF TOO ODOMETER AT DESTINATION OF TOO	ODOMETER AT DEPARTURE OF TOO DOMETER AT DESTINATION OF TOO	MILEAGE:	ODOMETER AT DEPAR	TURE 389069	ODOMETER AT DESTINATION 389/	<u>56</u>
ACUIUM TO SEES THE SOR TRAILER TO THER	ACHIM TO 13 THE SOFT TRAILER OTHER	ACHUM -	MC 306 TRAILER	OTHER		
	12 - 10 100 Walter					
	NOTEC (INSTRUCTION)	_				
Billing: O.H. MATERIALS	NOTESZINSTRUCTICIAS:	Killing	O.H. MATERIA	als .		
200 Horizon, Conto Bud,		)	200 Horizon	Conto Bords		
		ł (	Treater	I 08691		
reation No 08681		< ,	ي المرابعة الم	, 050 //		
1 10 10m, N.J. 08691	Billing: O.H. MATERIALS  200 Horizon, Center Bord,  Trenton, NJ. 08691	တ် '	₽ _			
renton, N.J. 08691	Billing: O.H. MATERIALS  200 Horizon, Center Bord,  Trenton, NJ. 08691	CI 1653 SI			DRIVER NAME:	
98 : 36 · 36 · 37 · 38 · 37 · 38 · 38 · 38 · 38 · 38	Billing: O. H. Marerials  200 Horizon, Center Bord,  Trenton, NJ. 08691	25	TO SH		(2)	A. 54-5
CI WE SILE OF THE DRIVER HAME:	Billing: O. H. Marerials  200 Horizon, Center Bord,  Trenton, NJ. 08691  CI ME SILL DRIVER HAME:	DISPOS			TRACTOR NO:	TRAILER NO:
CI ME SIL DRIVER HAME:  DISPOSO ITE COMPANY TRACTOR NO: TRAILER NO:	Billing: O. H. Mareriaks  200 Horizon, Center Bood;  Trenton, NJ. 08691  DRIVER HAME:  TRACTOR NO: TRAILER NO:					
CI MER SIGNATURE:  DISPOSE LITE HIME:  TRACTOR NO:  TRACTOR NO:	Billing: O. H. MATERIALS  200 Horizon, Center Bord:  Trenton, NJ. 08691  DISPOSE LITE HAPPER TO TRAILER NO:  TRACTOR NO:  TRACTOR NO:  TRACTOR NO:		H di		<u> 421</u>	VT-27
ACUUM FIRE MC 306 TRAILER OTHER	XO/ACUUM TO RELIFIC MIC 306 TRAILER OTHER	ACUUM =	RELEASE MC 306 TRAILER (	OTHER		
		NOTES/INSTR				
Only and many of the	NOTES/INSTRUCTIONs:	0.11:	· all man	.1.		
Billing O. H. MATERIALS		Killing	O.H. MATERI	4KS		
200 Horizon Center Bud?		_	200 Horizon	Center Royd?		
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108691	Billing: O.H. MATERIALS  200 Horizon, Center Bord,  Trenton, NJ. 08691		ဗ			
1 renton, N.J. 08691	Billing: O.H. MATERIALS  200 Horizon, Center Bord,  Trenton, NJ. 08691		<u> </u>			
36 :- 36 :-	Billing: O.H. Marcrials  200 Horizon, Center Bord,  Trenton, NJ. 08691	CI MER SIG	F 111		DRIVER NAME:	<del></del> .
S.S. = 38 S.V.	Billing: O.H. Marcriaks  200 Horizon, Center Bord,  Trenton, NJ. 08691	- 70	-12/57/	•	Kobert I	
CI MET SILE TO STATE DRIVER HAME:	Billing: O. H. Marerials  200 Horizon, Center Bord;  Trenton, NJ. 08691  DRIVER HAME:  Robert Levan	DISPRIS				
CI ME SICE DRIVER HAME:  DISPOSE LITE STATES TRACTOR NO: TRACTOR NO:	Billing: O. H. MATERIALS  200 Horizon, Center Bord:  Trenton, NJ. 08691  DISPOSE LITE HAME:  TRACTOR NO: TRAILER NO:	10.01 0-2-0.10	- O- (/			
CI MER SIGNATURE:  DISPOSE LITE HIME:  TRACTOR NO:  TRACTOR NO:	Billing: O. H. MATERIALS  200 Horizon, Center Bord:  Trenton, NJ. 08691  DISPOSE LITE HAPPER TO TRAILER NO:  TRACTOR NO:  TRACTOR NO:  TRACTOR NO:	是近	IAR SEP		<u> </u>	VT-29
CI MER SILL DRIVER HAME:  DISPOSO TE LINE TRACTOR NO: TRAILER NO:	Billing: O. H. Marchaks  200 Horizon Center Bord:  Trenton, NJ. 08691  DISPOSE CITE LEVEN  TRACTOR NO:  TRACTOR NO:  421 TT-29				421	VT-29

## RECEIVED VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

M9 50802

AR PM 1:35				B/	# 100 2~
FPTIC DUMP				<u> </u>	17/3/
2	TRANSPOR	TER DATA			
RTIFICATION: L. RC	Levan  Levan  Levan  Levan  Levan  Levan  Certify the information of the contraction of t	TANK CAP	ACITY:	500	
ENERATOR NAME: B. LOCT TO THE STREET OF WASTE: (CHECK	ONE) PACKAGE PLANT !	DATE/SIM JOH SLUDGE IT SLUDGE	GIGNATURE OF	CENERATOR REPRESE	1200 pm
·	G TANK DATA ONLY — MUS		E:	BY AUTH	
ADDRESS:			(SIGNATURE OF	GENERATOR REPRES	ENTATIVE
TYPE OF GENERATOR: ((	CHECK ONE)   RESIDENTIAL		□ со	MMERCIAL	
RESIDENTI	AL/COMMERCIAL GENERAT				TE ONLY
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	SEPTIC TANK	CK TYPE OF WAR	PORTABLE TOILETS	DATE/TIME OF PICKUP
	·		<u> </u>		
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·		<u> </u>	<u> </u>		

WHITE: VFSA COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY

## Acasportation Inc

Environmental Services P.O. Box 48 519 Royersford Road Royersford, PA 19468 333) 948-9377 • FAX (310) 948-6090

OLIER PURCHASE ORDER NO:	TELEPHONE NO:	DATE:
	i i	
OUTTOMER NAME:	410-478- ACCOUNT NO.	DISPOSAL SITE:
Balabridge Naval Sta	Hon	Jalley Forge Sewer Authority
ADDRESS:		
_kr. 222		Phoenixuille PA.
		WANIFEST NO.
tor Deposit, M	Δ	50823
TIME OF DEPARTURE	9:45 A.M.	ALLOTTED TIME
TIME OF ARRIVAL AT DUSTOMER	11:10 A.m.	
TIME OF DEPARTURE FROM CUSTOMER	12:20 p.m.	
TIME OF ARRIVAL AT DISPOSAL DITE	2,00 am	of hose - Paperwork signed - out
TIME OF DEPARTURE FROM DISPOSAL DITE	2:15-072	
TOTAL TIME	H1/2 HRS.	
&municipal RAW SEMAGE	TAT DOLDING TAN	IK PORTAL TO PORTAL
INDUSTRIAL I SEWAGE LLOGE	= REASE TRAI	
COMMERCIAL D'EACHATE	= GREASE TRA	
RESIDENTIAL . PRODUCTION WASTE	WET WELL/F	
SEPTIC TANK/ GESSPO		
FOOD PROCESSING		
VOLUME REMOVED:	•	
ĺ		ROLL OFF DUMP/ TRANSFER TRAILER
6,500 BALLONS	OTHER	CONTAINER SIZE: 10 20 30 OTHER
WEIGHT:		MISCELLANEOUS:
GROSS WEIGHT	LBS.	EXTRA HOSE FT. PH.
TARE VEIGHT	LBS.	LABOR
NET WEIGHT	LBS.	OTHER
MILEAGE:	2001/11	380110
ODOMETER AT DE	PARTURE 389414	ODOMETER AT DESTINATION 389492
ACUUM TRAILER MC 306 TRAILER	OTHER	
NOTESZINSTRUCTIONS:		
Parts : all -		(Bob Stoltz)
Billing: O. H. M.		-
200 Hori	2m Center Blut	<b>5.</b>
A SS Tremon	NJ: 03650	
S :: G		
CUS MER SIGNATURE		DRIVER MAME:
-/5/E 7/1		Kalan la a
DISRUSTU SITE SIGNE URE:		TRACTOR NO: TRAILER NO:
- S - S - ( )		421 117-29
10		

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

kī o 50823

PINK: GENERATOR COPY

95 MAR 15 PM 1:55

WHITE: VESA COPY

SEPTIC DUMP					$\mathcal{B}/_{\mathcal{L}}$	#19939
REIFSNEIDER T 519 ROYI P.O	ERSFORD ROA . BOX 48 ORD, PA 194	AD TRANSPO	TANK CAP	JMBER: J	500	AD pH: GALLONS lest of my knowledge.
INDUSTRIAL C	SENERATOR  Findinge N  222  Das it INA  (CITY STATE ZIP)		DATE/TIM	E: 3-15-9	5	INTATIVE A SECTION OF
GENERATOR NAME:					BY AUTH	
TYPE OF GENERATOR: (	(CITY, STATE, ZIP)			_	F GENERATOR REPRES	ENTATIVO
RESIDENTI	AL/COMMEI	RCIAL GENERA				TE ONLY
CUSTOMER NAME		ER ADDRESS – , TOWN, ZIP	SEPTIC TANK	HOLDING TANK	PORTABLE TOILETS	DATE/TIME OF PICKUP
	·					
·						
				<del> </del>	<u> </u>	

YELLOW: TRANSPORTER COPY

### Dejf5Majder Arransportation inc

Environmental Services
P.O. Box 48
519 Royersford Road
Propersford 30 19463

519 Royersford Road Royersford, PA 19468 (610) 948-9377 • FAX (510) 948-6090

	410-378-	4419 3-15-95
BAINDAGE NAVAL STATE	, ACCOUNT NO.	Valley Forge Sewer Authority
ADDRESS. 222		Phoenixuille Pa.
Port Deposit, Mi	),	MANIFEST NO: 50812
TIME OF DEPARTURE  TIME OF REGNAL OF DETERMINES  TIME OF DEPARTURE FROM DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE  TOTAL TIME	4:30 A.m. 6:10 A.m. 7:30 A.m. 9:15 A.m. 9:45 A.m.	ALLOTTED TIME  DEMURRAGE TIME  REASON FOR DELAY Check in - Load - get  Paper work Signed - Check out  Fump than 300 ft. of hose
MUNICIPAL AND EWAGE INDUSTRIAL SEWAGE SLUDGE COMMERCIAL LACHATE PRODUCTION WASTE DEFTIC TANK, CESSPOO	HOLDING TAN GREASE TRAF LAGOON/DIC WET WELL/P	RATE
VOLUME RELIGIORIS:	OTHER	☐ ROLL OFF ☐ DUMP/ TRANSFER TRAILER  CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT	LBS.	MISCELLANEOUS:  EXTRA HOSE FT. PH LABOR OTHER
MILEAGE:	2	
ODOMETER AT DEPA	RTURE 389248	ODOMETER AT DESTINATION 389334
<b>!</b>		ODOMETER AT DESTINATION 389.334

• FECEIVED VALLEY FORGE, S.A.

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

Mº 50822

IR 15 AH 9: 21

SEPTIC DUMP				B/	1 = 19738
DRIVER: ROYERSE	TRANSPORTATION INC. VERSFORD ROAD TRANSPO  D. BOX 48  FORD, PA 19468  CHATURE OF DRIVERS	TRUCK N	UMBER:	6,500	AD pH: GALLONS pest of my knowledge.
	GENERATOR DATA ONLY —			•	AUTHORITY
GENERATOR NAME:  ADDRESS:  TYPE OF WASTE: (CHECK	(CITY, STATE! ZIP)	SLUDGE	(SIGNATURE OF		SUJECICO DESPI Mary V
HOLDING	G TANK DATA ONLY — MU	ST BE PRE	APPROVE	BY AUTH	IORITY
GENERATOR NAME:		DATE/TIN	ЛЕ:		
ADDRESS:			(SIGNATURE O	F GENERATOR REPRES	FNTATIVE
TYPE OF GENERATOR: (0	(CITY, STATE, ZIP)  CHECK ONE)   RESIDENTIAL		<b>□</b> cc	OMMERCIAL	·
RESIDENTI	AL/COMMERCIAL GENERA	TOR(S) DA	NTA — SEP	TAGE WAS	TE ONLY
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	SEPTIC TANK	HOLDING TANK	PORTABLE TOILETS	DATE/TIME OF PICKUP
				· _	
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Environmental Services P.O. Box 48 519 Royersford Road Royersford, PA 19468 (610) 948-9377 • FAX (610) 948-5090

CUSTOMER PURCHASE ORDER NO:	TËLEPHONE NO:	3-16-95
BAIRDING NAVAL STATIO	ACCOUNT NO.	Valley Forge Sewer Authority
AT. 222		Phoenixville PA.
PORT DEDOSIT MA	١,	MANIFEST NO: 29199
TIME OF DEPARTURE TIME OF ARRIVAL AT CUSTOMER	10:00 A.M.	DEMURRAGE TIME NAME AND ADDRESS OF THE PROPERTY OF THE PROPERT
TIME OF DEPARTURE FROM GUSTOMER  TIME OF ARRIVAL AT DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE	2:00 p.m.	REASON FOR DELAY WAIT to LOAD - LOAD they
TOTAL TIME	4 HRS 20 mi	<i>y</i> •
MUNICIPAL AND SEWAGE  INDUSTRIAL SEWAGE SLUDGE  COMMERCIAL DE RODUCTION WASTE  RESIDENTIAL SEPTIC TANK/CESSPOCE  FOOD PROCESSING	HOLDING TAN GREASE TRA LAGOON / DIK WET WELL, F	P RATE  GESTOR  PUMP STATION
VOLUME REMOVED:		
G-500 ALLONS	OTHER	☐ ROLL OFF ☐ DUMP/ TRANSFER TRAILER  CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT:		MISCELLANEOUS:
GROSS WEIGHT	LBS.	EXTRA HOSE FT. PH
TARE .VEIGHT		LABOR
NET WEIGHT		OTHER
NET WEIGHT		
NET WEIGHT	LBS.	ODOMETER AT DESTINATION
NET WEIGHT  MILEAGE:  ODOMETER AT DEPA  ODOMETER AT DEPA  OVACUUM TRAILER MC 306 TRAILER  NOTES/INSTRUCTIONS:  Billing: O-H. Man  200 Horizon	LBS.	OTHER  ODOMETER AT DESTINATION
NET WEIGHT  MILEAGE:  ODOMETER AT DEPA  DOMESTER AT DEPA  DOMESTER AT DEPA  NOTES/INSTRUCTIONS:  Billing: O-H. Man  200 Holizaa	LBS.  ARTURE  OTHER  Terials  V Center Blud	OTHER  ODOMETER AT DESTINATION
NET WEIGHT  MILEAGE:  ODOMETER AT DEPA  DOMETER AT DEPA  NOTES/INSTRUCTIONS:  Billing: O.H. MAN  200 Horizon	LBS.  ARTURE  OTHER  Terials  V Center Blud	ODOMETER AT DESTINATION

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

29199

95 HAR 16 PM 2: 00 SEPTIC DUMP

3/4 19941

	TRANSPO	RTER DATA	١		
DRIVER: DOLET COMPANY: THE SHAPE CERTIFICATION: I, CI	de Transo. inc		ACITY:	-500	CALLONS
$I_{ij}^{\infty}$	GENERATOR DATA ONLY			11 -	UTHORITY
ADDRESS:	1000 TOTAL STATE ZIM NO. 1 TOTAL	Land DATE TIME	11 Gin	<u>بر دیگر</u>	ENTATIVE OF SA
TYPE OF WASTE: (CHECI	ONE)   PACKAGE PLAN  TREATMENT PL			HER P	My Jana
	G TANK DATA ONLY — MU	DATE/TIM		BY AUTH	IORITY
	(CITY, STATE, ZIM)  CHECK ONE)   RESIDENTIAL		_	GENERATOR REPRES	ENTATIVE
RESIDENTI	AL/COMMERCIAL GENERA		TA — SEPT		TE ONLY
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	SEPTIC TANK	HOLDING TANK		DATE/TIME OF PICKUP

### ransportation inc

Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
948-9377 • FAX (610) 948-6090

(6

J06#2

CUSTOMER PURCHASE ORDER NO: TELEPHONE NO: DISPOSAL SITE: CUSTOMER MANE: ACCOUNT NO. BAIN BRIDGE KAUAL STATION PORT Deposit, Md. 9:554~ TIME OF DEPARTURE WILL Dal. ALLOTTED TIME 10:38 m そ(を TIME OF ARRIVAL AT CUSTOMER DEMURRAGE TIME 11:50 AL TIME OF DEPARTURE FROM OUSTOMER REASON FOR DELAY L TIME OF ARRIVAL AT DISPOSAL SITE 15 6 Pm TIME OF DEPARTURE FROM DISPOSAL SITE. 4601-2 TOTAL TIME PORTAL TO PORTAL MUNIC:PAL RAW SEWAGE HOLDING TANK INDUSTRIAL SEWAGE SLUDGE GREASE TRAP RATE \_\_\_\_ COMMERCIAL , ALLACHATE LAGOON / DIGESTOR RESIDENTIAL TO PRODUCTION WASTE WET WELL / PUMP STATION SEPTIC TANK, CESSPOOL OTHER \_\_\_ FOOD PROCESSING VOLUME REMOVED: 6000 ROLL OFF DUMP/TRANSFER TRAILER CONTAINER SIZE: \$\Bigsize 10 \Bigsize 20 \Bigsize 30 \Bigsize 0THER \L \_\_ OTHER WEIGHT: MISCELLANEOUS: GROSS WEIGHT \_\_\_\_\_ LBS. EXTRA HOSE \_\_\_\_\_\_ FT. PH. \_\_\_ TARE WEIGHT \_\_\_\_\_ LBS. NET WEIGHT \_\_\_\_\_ LBS. OTHER D. Dapesti Ind. MILEAGE 7744 b.FonGr ODOMETER AT DERVISOR ODOMETER AT DESTINATION ☐ VACUUM TRAILER ☐ MC 306 TRAILER ☐ OTHER NOTES/INSTRUCTIONS: BILLING INFO OH MATERIALS 200 HORIZON CENTER Blud. TRENTON, N. J. 08650
IDRIVER NAME: TRAILER NO:

# VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

37446

3/2 20035

		TRANSPOR	TER DATA	<b>\</b>		
DRIVER: John A	TRUCK NI	UMBER: 5	,000	AD pH:GALLONS		
GENERATOR NAME: 100 ADDRESS: 17 222	inbridge	NAUAL STATION	N DATE/TJM	1E: 3-16-	- 1 1 i	
1 1 1 2	CITY, STATE ZIP		SLUDGE	DE LEA	0 0+ 11 : ACHATE ()	
HOLDING GENERATOR NAME:		ra ONLY — MUS		APPROVED		IORITY
ADDRESS:	(CITY, STATE, ZIP				F GENERATOR REPRE	SENTATIVE
RESIDENTIA	L/COMME	RCIAL GENERAT				TE ONLY
CUSTOMER NAME		MER ADDRESS – T, TOWN, ZIP		CK TYPE OF W HOLDING TANK		DATE/TIME OF PICKUP

WHITE: VF5A COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY

DRIVER MA

403

TRAILER NO:

5710

## Reifsheider

SE CREATURE. Richal JE

Environmental Services
P.O. Box 48
519 Royersford Road
Royersford. PA 19463

CUSTOMER PURCHASE DRIVER NO.	TELEPHONE NO:	DATE:
		MARCH 17, 1975
CUSTOMER NAME:	AUCOUNT NO.	DISPOSAL SITE:
D. H. MATERIALS		VALLEY FORGE SEWER AUTH.
ADDRESS:		ADDRESS:
200 HORIZON CENTE	R BLVD.	PHOENIXVILE, PA
TRENTOH , NJ 08	డకర	50797
TIME OF DEPARTURE	10:00 AM	
TIME OF ARRIVAL AT CUSTOMER	11:30 AM	
TIME OF DEPARTURE FROM CUSTOMER	13:15 PM	MENOUT ON DEL !
TIME OF ARRIVAL AT DISPOSAL SITE	15:00 PH	
TIME OF DEPARTURE FROM DISPOSAL SITE		
TOTAL TIME	<u>5:30</u>	
IX MUNICIPAL I RAW SEWAGE	T HOLDING TA	NK PORTAL TO PORTAL
☐ INDUSTRIAL ☐ SEWAGE SI UDGE	GREASE TRA	AP RATE
GOMMERCIAL ELEACHATE	_ LAGOON/ D	
PESIDENTIAL PRODUCTION WASTE	_ WET WELL/	PUMP STATION
SEPTIC TANK/CESSP	OOL TOTHER	
FOOD PROCESSING		
VOLUME REMOVED:		
		☐ ROLL OFF ☐ DUMP/TRANSFFR TRAILER
6000 GALLONS	OTHER	CONTAINER SIZE: 10 20 30 THER
WEIGHT		MISCELLANEOUS:
GROSS WEIGHT	LBS.	EXTRA HOSE FT. PH
ŢARE WEIGHT		LABOR
NET WEIGHT		OTHER
MILEAGE:	PARTURE 205307	ODOMETER AT DESTINATION
COOMETER AT DE	PARTURE 2025	ODOMETER AT DESTINATION
VACUUM TRAILER X:10 306 TRAILER	OTHER	
NOTES/INSTRUCTIONS:		
	RAINEPIDA	E NAVAL STATION
GOVERANCE.		
<u>ــــ</u>	PORT DE	POSIT, MD
3: 07 3: 07 MP		

### VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

M9 50797

TRANSPORTER DATA DRIVER: ZEEF LADE J TRUCK NUMBER: 403/57/2 LOAD DH: COMPANY REFENEICER TRANSPORTATION TANK CAPACITY CERTIFICATION: 1, certify the information on this Manifest to be true and correct to the best of my knowledge. INDUSTRIAL GENERATOR DATA ONLY — MUST BE PREAPPROVED BY AUTHORITY GENERATOR NAME SAIN STATION DATESTIME ADDRESS:\_ DEFCEIT □ PACKAGE PLANT SLUDGE **™**-LEACHATE TYPE OF WASTE: (CHECK ONE) □ OTHER ☐ TREATMENT PLANT SLUDGE HOLDING TANK DATA ONLY — MUST BE PREAPPROVED BY AUTHORITY DATE/TIME: \_\_\_ GENERATOR NAME: \_\_\_\_\_ (SIGNATURE OF GENERATOR REPRESENTATIVE) (CITY, STATE, ZIP) ☐ RESIDENTIAL ☐ COMMERCIAL TYPE OF GENERATOR: (CHECK ONE) RESIDENTIAL/COMMERCIAL GENERATOR(S) DATA — SEPTAGE WASTE ONLY **CHECK TYPE OF WASTE** SEPTIC HOLDING **PORTABLE** DATE/TIME OF CUSTOMER **CUSTOMER ADDRESS --**NAME TANK TANK **TOILETS PICKUP** STREET, TOWN, ZIP

WHITE: VFSA COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY

### Tro-sportation Inc

 YALLEY FORGE, S.A.

95 HAR 17 AH 10: 14

SEPTHO DUMP

CUSTOMER PURCHASE ORDER 110.	FELEPHONE NO:	DATE:	
		3-/	フータノ
CUSTOMER NAME:	ACCOUNT NO.	DISPOSAL SITE	
BAINBRIDGE ROAVAI	STAN,	V. F. W. W.	T. PIT.
BAINBRIDGE NORUMI ADDRESS: PORT DEPOSIT	. /	ADDRESS:  Valley Fox 6  MANIFEST NO:	0-
PORT DEPOSIT	Md.	MANJEST NO:	e - PF.
		50798	
TIME OF DEPARTURE \$ 600	5:3000	ALLOTTED TIME	
TIME OF ARRIVAL AT CUSTOMER	7:201	1/21	
TIME OF DEPARTURE FROM CUSTOMES.	1:300	REASON FOR DELAY WIT F	on 1:570
TIME OF ARRIVAL AT DISPOSAL SITE	10: 14 m	Land	<del></del>
TIME OF DEPARTURE FROM DISPOSAL SITE			
TOTAL TIME	5haj	<u> </u>	
MUNICIPAL RAW SEWAGE	☐ HOLDING TA	NK 🗆 portal to por	TAL
INDUSTRIAL SEWAGE SLUDGE	🔲 GREASE TRA		
COMMERCIAL ACHATE	LAGOON/D		
RESIDENTIAL PRODUCTION WASTE			
FOOD PROCESSING	POOL OTHER		
VOLUME REMOVED:			
		ROLL OFF DUMP/TRANSFER	TRAILER
6000 GALLONS	OTHER	CONTAINER SIZE: 🗌 10 🔲 20	☐ 30 ☐ OTHER
WEIGHT:		MISCELLANEOUS:	
GROSS WEIGHT	L.B.S.	EXTRA HOSE	_ FT. PH
TARE WEIGHT		LABOR	_
NET WEIGHT	LBS.	OTHER	
Shop ODOMETER AT 3	EPARTURE	ODOMETER AT DESTINATION	246127
□ VACUUM TRAILER 🖈IC 306 TRAILE	•		
NOTES/INSTRUCTIONS: BILLIN	b INFO		,
	_		
O . A .	MATORI	AIS	
200	HARIDA	a Contra B.	ud
	•	•	, , ,
TRA	vro~ N.	5.08650	// a 2 \ 6 ·
CUSTOME: SIGNATURE	UB~ FACT	306 STOITE H	410-318-4419
1 Dalas d	2 <del> 1 -</del>		
DIL AL SITE SIGNATURE:	my	TRACTOR NO:	M. Adams
		4/6	57-9

# VALLEVALLEY FORGE SEWER AUTHORITY 95 HAR 17 AH 10: 13

SEPTIC DUMP

Nº 50798

R 20036

TRANSPORTER	DATA

	IKANSPON	IEK DAIA	<b>\</b>		
DRIVER: J. Adam	- <u></u>	TRUCK NU	JMBER: <i>U_/</i>	16 LO/	AD pH:
COMPANY: Acirsae	dea than, the	TANK CAP	ACITY:	000	GALLONS
	certify the information				
INDUSTRIAL G	ENERATOR DATA ONLY —	MUST BE		OVED BY A	UTHORITY
GENERATOR NAME: 1	in bridge haver stor	DATE/TIM	E: 3-/1-9	95-	
ADDRESS: DOAT D	eperit pod sem		SULLE OF	GENERATOR REPRES	
<u></u>	(CITY, STATE ZIM 5 12)	٧~	GIGHATORE OF	1n	7:2010
TYPE OF WASTE: (CHECK			LEA		575 Phone
	TANK DATA ONLY — MUS		APPROVEC		ORITY
ADDRESS:					
700KE3.			(SIGNATURE OI	GENERATOR REPRES	ENTATIVE
TYPE OF GENERATOR: (C	CITY, STATE, ZIP)  CHECK ONE)  CHECK ONE)  RESIDENTIAL		□ cc	MMERCIAL	
RESIDENTIA	AL/COMMERCIAL GENERAT	OR(S) DA	TA — SEP	TAGE WAS	TE ONLY
CHETOLIER	CUSTOMER ADDRESS –	SEPTIC	CK TYPE OF W	PORTABLE	DATE/TIME OF
CUSTOMER NAME	STREET, TOWN, ZIP	TANK	TANK	TOILETS	PICKUP
		<u>                                     </u>	<u> </u>	<u></u>	
[					
		<u> </u>	<del> </del>		
L		<u> </u>	<u> </u>	<u> </u>	

WHITE: VESA COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY



Environmental Services
P.O. Box 95/11/17 Pil 4: 53
519 Royersford Road
Royersford, PA 1 SEPTIC DUMP
(610) 948-9377 • FAX (610) 948-6090

JOB#2

I and the second	TELEPHONE NO:	DATE:	
CUSTOMER NAME:	ACCOUNT NO.	DISPOSAL SITE:	- 91-
Baris La La	AUCCUNT NO.		0.5
BAIN BRIDGE NAVA ADDRESS: PORT DEPOSIT	<u> </u>	V. J. W. W. T. / ADDRESS:	771
PORT DEROSET	Co d	Valley FORGE	
- Napara	, , ,	MANIFEST NO:	100
		50 794	
TIME OF DEPARTURE U. / A OL C	10:52m	ALL OTTED TIME	
TIME OF ARRIVAL AT COUNTAINER	12:27/-		<del>-</del>
TIME OF DEPARTURE FROM CUSTOMER	2: 4170		- ***
TIME OF ARRIVAL AT DISPOSAL SITE	5:00 pm		
TIME OF DEPARTURE FROM DISPOSAL DITE	5:15 Pm	wasen to complete L	
TOTAL TIME \$ 6 : P	5 7 4L P-	move to other Land si	
MUNICIPAL BAW SE VAGE	BAND HOLDING TA		AFFIO
□ INDUSTRIAL □ SEWAGE SLUDGE 64	GREASE TR		
COMMERCIAL ALEACHATE	-AJ 50 LAGOON/D		
☐ SIDENTIAL ☐ PRODUCTION WASTE		PUMP STATION	
SEPTIC TANK/CESSPO			
FOOD PROCESSING			
VOLUME REMOVED:			
VOLUME REMOVES.		ROLL OFF DUMP/ TRANSFER TRAILER	
6000 GALLONS	OTHER	☐ ROLL OFF ☐ DUMP/ TRANSFER TRAILER CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30	
	OTHER		
6000 JALLONS		CONTAINER SIZE: 10 20 30	OTHER
6000 GALLONS	LBS.	CONTAINER SIZE: 10 20 30	OTHER
6000 GALLONS	LBS.	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE FT. I	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:	LBS. LBS. LBS.	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR OTHER	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:	LBS. LBS. LBS.	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  ODCMETER AT DEP	LBS. LBS. LBS. LBS.	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR OTHER	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:	LBS. LBS. LBS. LBS.	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  ODOMETER AT DEP	LBS. LBS. LBS. ARTURE OTHER	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR OTHER  ODOMETER AT DESTINATION	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  GROSS WEIGHT  DOCMETER AT DEP	LBS. LBS. LBS. HUNT ARTURE OTHER	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR OTHER  ODOMETER AT DESTINATION	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FOLGE  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER	LBS. LBS. LBS. HUNT ARTURE OTHER	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR  OTHER  ODOMETER AT DESTINATION	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  OH. MATTER IN.  OH. MATTER IN.	LBS. LBS. LBS. HURT ARTURE TOTHER  CONTRA	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR  OTHER  ODOMETER AT DESTINATION	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FOZGE  ODCMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  L. FOZGE  ODCMETER AT DEP  C. H. MATTER  TO HOR IZ ON  TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  TO HOR IZ ON	LBS. LBS. LBS. HURT ARTURE  OTHER  CONTRA  CONTRA  OSGOO	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FOZGE  ODCMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  L. FOZGE  ODCMETER AT DEP  C. H. MATTER  TO HOR IZ ON  TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  TO HOR IZ ON	LBS. LBS. LBS. HURT ARTURE  OTHER  CONTRA  CONTRA  OSGOO	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSEFT.  LABOR  OTHER  ODOMETER AT DESTINATION	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FORGE  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  Q. H. MATTER  TO HOR IZ ON  TRAILER  SITTE  O  SITTE	LBS. LBS. LBS.  LBS.  YURTURE  OTHER  OFFICE  OSGINA	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FOZGE  ODCMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  L. FOZGE  ODCMETER AT DEP  C. H. MATTER  TO HOR IZ ON  TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  TO HOR IZ ON	LBS. LBS. LBS.  LBS.  YURTURE  OTHER  OFFICE  OSGINA	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	- OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V.FONGE  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  O. H. MATTER  TO HOR IZ ON  TRAILER  CU' ME GNATURE:  CU' ME GNATURE:	LBS. LBS. LBS.  LBS.  YURTURE  OTHER  OFFICE  OSGINA	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	- OTHER
WEIGHT:  GROSS WEIGHT  TARE WEIGHT  NET WEIGHT  MILEAGE:  V. FORGE  ODOMETER AT DEP  VACUUM TRAILER  NOTES/INSTRUCTIONS:  Q. H. MATTER  TO HOR IZ ON  TRAILER  SITTE  O  SITTE	LBS. LBS. LBS.  LBS.  YURTURE  OTHER  OFFICE  OSGINA	CONTAINER SIZE: 10 20 30  MISCELLANEOUS:  EXTRA HOSE	- OTHER

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

95 MAR 17 PM 4: 53

SEPTIC DUMP

<u>M0</u>

R-2

### TRANSPORTER DATA

•				. (	
DRIVER:Addy	<del></del>	TRUCK N	UMBER:	<u>/ /</u> LO	AD pH:_
COMPANY: ROTE SAME	ide that too	TANK CAF	ACITY: 6	000	
CERTIFICATION: 1, 2	certify the information	on this Manife	st to be true and	correct to the b	est of my
INDUSTRIAL G	ENERATOR DATA ONLY -	- MUST BE	PREAPPRO	OVED BY A	
GENERATOR NAME: 13/1	IN BRIDGE LALA STA  1161.7 Md.  1111-  CITY, STATE ZIPY . 41 P.  ONE PACKAGERIAN	DATE/TIM	E: 7 -17-5	- 017	2:4
ADDRESS: DUATIO	1061.7 Md.	42	Sh Gan	GENERATOR REPRES	
	5 11 1/-	lec			ENTATIVE
حرد ۵ ک	(CITY, STATE ZIP)	1	N. C. Phoa		
TYPE OF WASTE: (CHECK	ONE) PĄCKAGĘPICANI TREATMENT PL	TATABLE TATABLE	The LEA	NCHATE MER	
	(10 R: 50	ANT SCODGE			
	·				ADIT
HOLDING	TANK DATA ONLY — MU	SI BE PRE	APPROVEL	J BT AUIN	UKII
GENERATOR NAME:		DATE/TIM	1E:		
ADDRESS:					
		<del></del> -	(SIGNATURE O	F GENERATOR REPRES	GVITATING
<del>-,</del>	(CITY, STATE, ZIP)		_		
TYPE OF GENERATOR: (C	HECK ONE)   RESIDENTIAL		□ cc	OMMERCIAL	
RESIDENTIA	L/COMMERCIAL GENERA	TOR(S) DA	TA — SEP	TAGE WAS	TE ON
		СНЕ	CK TYPE OF W	ASTE	
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	SEPTIC TANK	HOLDING TANK	PORTABLE TOILETS	DATE. PI
		T	]		
ļ .					
				<u> </u>	
WHITE: VFSA COPY	YELLOW: TRAN	SPORTER COPY		PI	NK: GENERA

### 291fsheider Transportation inc

Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468

(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE (IEDER (II)): FELEPHONE (II):  410-378-44  CUSTOMER NAME  ACCOUNT (IO)	19 3-17-95
CUSTOMER NAME.  BAINDRINGE NAME STATION  ACCOUNT FIO.  ACCOUNT FIO.  POIT Deposit MD.	Valley Forge Sewer Authority ADDRESS Phoenixville, Par MANIFEST NO: 29197
TIME OF DEFARTURE  TIME OF ARRIVAL AT OUR FOME?  TIME OF DEPARTURE FROM CUSTOMER  TIME OF ARRIVAL AT DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE  TOTAL TIME  TOTAL TIME	ALLOTTED TIME  DEMURRAGE TIME  REASON FOR DELAY
MUNICIPAL RAW SEWAGE HOLDING TAN INDUSTRIAL SEMAGE SLUDGE GREASE TRAFF LAGOON / DIC COMMERCIAL PRODUCTION WASTE WET WELL! FOOD PROCESSING	RATE
VOLUME REMOVED:	☐ ROLL OFF ☐ DUMP/TRANSFER TRAILER  CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT.         GROSS WEIGHT	MISCELLANEOUS:  EXTRA HOSEFT. PH  LABOR OTHER
MILEAGE: ODOMETER AT DEPARTURE 389815	ODOMETER AT DESTINATION 387900
₩ ACUUM TRAILER	
Billing: O. H.M.  Billing: O. H.M.  By 200 Horizon Conto Blud,  Si 80 Linenton, No 08650  C HER GENATE:  DISPOSAL SINECIONICAE:  W 86	STOLT2)  DRIVER NAME:  ADDERT LEVAN  TRACTOR NO: TRAILER NO:  421 VT-29

RECEIVED VALLEY FORGE, S.A.

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

29197

9 AR 17 AM 8:58

					rs/.	= 19942
-SEPTIC-DUITP			<del></del>	<del></del>	-/2	11115
	•	TRANSPOR	TER DATA			
COMPANY: ROSE IS SEEN	der Trans	Certify the information	TANK CAPA	.city: 6	500	GALLONS
		R DATA ONLY —				
GENERATOR NAME: X	<u>Ksinbidge</u> 2	· NAVAL STRIPE	DATE/TIME	3-17-93	5 27	boan
Port 1	I (CITY, STATE ZII	. Mil	<del></del>	(SIGNATURE OF C	ENERATOR REPRES	UFS A DUPSA
TYPE OF WASTE: (CHECK	(ONE)	☐ PACKAGE PLANT ☐ TREATMENT PLA		D OTH	ER Ma	JCX402
HOLDING	G TANK DA	TA ONLY — MUS	ST BE PRÉA	PPROVED	BY AUTH	IORITY
GENERATOR NAME:			DATE/TIME			
ADDRESS:				(SIGNATURE OF C	ENERATOR REPRE	SENTATIVE)
TYPE OF GENERATOR: (	(CITY, STATE, ZI	_		□ co∧	MERCIAL	
RESIDENTI	AL/COMM	ERCIAL GENERA	OR(S) DAT	TA — SEPT	AGE WAS	TE ONLY
				K TYPE OF WA		
CUSTOMER	CUSTO	MER ADDRESS -	SEPTIC	HOLDING	PORTABLE	DATE/TIME OF

		CHI	ECK TYPE OF W	ASTE	·
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	SEPTIC TANK	HOLDING TANK	PORTABLE TOILETS	DATE/TIME OF PICKUP
			<u> </u>		
<u></u>			<del> </del>		
1					
			<del> </del>		
	<u></u>				UK. CENSERATOR COPY

WHITE: VFSA COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY

## leifsneider Transportation inc

Environmental Services P.O. Box 48 519 Royersford Road Royersford, PA 19468

(610) 948-9377 • FAX (610) 343-6090

CUSTOMER PURCHASE ORDER DIG. TELEPHONE NO:	3-17-95
COSTOMER FLAME: ACCOUNT TO.	Valley Forge Savet Authority
LT 222	Phoenixille Pa.
Port Deposit, M.	MANIFEST NO: 50836
TIME OF DEPARTURE  TIME OF ARRIVAL AT CUSTOMER  TIME OF DEPARTURE FROM CUSTOMER  TIME OF ARRIVAL AT DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE	reason for delay Prime pump - Load thru 300 ft of hose : Finish Loading 12:001:no
TOTAL TIME    MUNICIPAL   RAW SEWAGE   HOLDING TAN	RATE
VOLUME RELIOVED:  6,500 GALLONS OTHER	☐ ROLL OFF ☐ DUMP/ TRANSFER TRAILER  CONTAINER SIZE: ☐ 10 ☐ 20 ☐ 30 ☐ OTHER
WEIGHT:         GROSS WEIGHT LBS.           TARE WEIGHT LBS.         NET WEIGHT LBS.	MISCELLANECUS:  EXTRA HOSEFT. PH  LABOR  OTHER
MILEAGE:  ODGMETER AT DEPARTURE 389979	ODOMETER AT DESTINATION 390056
VACUUM TRAILER  MC 306 TRAILER  OTHER	
OUMP S.A.	OCONSCIONALIT
DISPOSAL SHE SILVATURE.	DRIVER TAME:  Obert Levas  TRACTOR NO: TRAILER NO:
DISPOSAL SHE SIGNATURE.	TRACTOR NO: TRAILER NO: 421 VI-29

RECEIVED EY RGE. S.A.

### **VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST**

59836

AR 17 PH 3:41

WHITE: VFSA COPY

31-# 19943

PINK: GENERATOR COPY

EF

TIC DUMP						
		TRANSPO	RTER DATA	١		
DRIVER: DOLOGT COMPANY: KA FSNO	de Tra	nsp. INC.	TANK CAI	PACITY: <u></u>	,500	GALLONS
CERTIFICATION: I, SIC	NATURE OF DRIVER)	certify the information	on this Manife	st to be true and	correct to the I	best of my knowledge.
		R DATA ONLY —	•			
GENERATOR NAME:	inhidae	Naval Station	DATE/TIM	E 3-17	75	11/030
ADDRESS. TO	122	m	920	of he long	~ · · · · ·	
TYPE OF WASTE: (CHECK	ONE)	☐ PACKAGE PLANT☐ TREATMENT PLA		ÉÌ LEA □ OT	CHATE M	JAHPERSER
HOLDING	TANK DA	TA ONLY — MU	ST BE PRE	APPROVE	BY AUTH	IORITY
GENERATOR NAME:			DATE/TIM	1E:		
ADDRESS:				(SIGNATURE O	F GENERATOR REPRE	SENTATIVE)
TYPE OF GENERATOR: (C	(CITY, STATE, Z			□ со	DMMERCIAL	
RESIDENTIA	AL/COMM	ERCIAL GENERA	TOR(S) DA	TA — SEP	TAGE WAS	TE ONLY
CUSTOMER NAME		OMER ADDRESS – ET, TOWN, ZIP	SEPTIC TANK	CK TYPE OF W HOLDING TANK	PORTABLE TOILETS	DATE/TIME OF PICKUP
			<u> </u>			
			<del> </del>			
					<u> </u>	

YELLOW: TRANSPORTER COPY



Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468

(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE ORDER (1.0).	12LEPHONE NO: 4/0 - 378	. 4419 3-17-95
Bainbridge Naval Sta	ACCOUNT NO	DISPOSAL SITE: Valley Forge Sewer Anth.
Port Deposit, MD.		Phienixuille, PA
		MANIFEST NO: 50799
TIME OF DEPARTURE  TIME OF ARRIVAL AT DUSTOMER  TIME OF DEPARTURE TROM OUSTOMER  TIME OF ARRIVAL AT DISPOSAL SITE  TIME OF DEPARTURE FROM DISPOSAL SITE	5:30 Am. 7:10 9:10 10:40	ALLOTTED TIME  DEMURRAGE TIME  REASON FOR DELAY  Wait 6, 2 Trucks
TOTAL TIME	5:40	
MUNICIPAL RAW SEWAGE INDUSTRIAL SEWAGE SLUDGE COMMERCIAL ENCLOSED PRODUCTION WASTE SEPTIC TANK, CESSPOO	HOLDING TAN GREASE TRAF LAGOON / DIG WET WELL / P L OTHER	P RATE
VOLUME REMOVED:		_
5,500 GALLONS	OTHER	CONTAINER SIZE: 10 20 30 OTHER
WEIGHT:		MISCELLANECUS:
GROSS WEIGHT		EXTRA HOSE FT. PH
TARE WEIGHT		OTHER
MILEAGE:		ODOMETER AT DESTINATION
ODGME: ER AT DEPA	RTURE	
VACUUM TRAILER MC 306 TRAILER	OTHER	95 / 8
NOTES/INSTRUCTIONS		P R E
Billing Fufo: OH Materials		TIC Y
200 Horizon Cen Trenton, NS 086	ten Blud. Se	AHIO: 50 DUMP
Trenton, NS 086  TOMER SIGNATURE:	ter Blut.	DRIVER NAME /// Juja



### VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

E9 50798

95 MAR 17 AM 10: 51

SEPTIC DUMP

1/267

	TRANSPO	RTER DATA	4		
CERTIFICATION: 1	May Trans Tours Tours Tours of DRIVER OF DRIVE	TRUCK N TANK CAF	UMBER: UT	ンシ LC <u> </u>	OAD pH: GALLO
	ENERATOR DATA ONLY —				
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	TANK DATA ONLY — MU				HORITY
		DATE/TIM	1E:	· · · · · · · · · · · · · · · · · · ·	·- <u></u>
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RESIDENTIA	AL/COMMERCIAL GENERA	TOR(S) DA	TA — SEP	TAGE WAS	TE ONLY
CUSTOMER NAME	CUSTOMER ADDRESS – STREET, TOWN, ZIP	CHE SEPTIC TANK	CK TYPE OF W HOLDING TANK	ASTE PORTABLE TOILETS	DATE/TIME O PICKUP

WHITE: VFSA COPY

YELLOW: TRANSPORTER COPY

PINK: GENERATOR COPY



Environmental Services
P.O. Box 48
519 Royerstord Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE DRDER 1	FELEFHONE NO:	İ	DAIE.	;
			MARCH	17 1935
USTOMER NAME.	ACCOUNT NO.	DISPOSAL DITE:		•
D.H. MATERIALS	÷	VALLEY F	ORGE	SEWER AUT
DDRESS.		ADDRESS.	· · ·	
200 HORIZON CENT	FR BUD.	PHOENIXV	ILLE .	PA
DO HURIZUR CERT		MANIFEST NO:		
TRENTON NI C	7 <b>6</b> 7- <b>5</b> 77	29 AB		
IRENTON NI C			<del></del>	
TIME OF DEPARTURE	05100 AM	ALLOTTED TIME		
IME OF ARRIVAL AT 10 17 100FF	06:45 AM	DEMURRAGE TIME	NCA	
TIME OF DEFARITURE FROM QUISTOMER	07:45 AM	REASON FOR DELAY L		
TIME OF ARRIVAL OF DISPODAL DITE	09:30 AM			
TIME OF DEPARTURE THOM DISPOSAL SITE	10:00 AM			
TOTAL TIME	5:00			
MIUNICIPAL TRANSCENAGE	HOLDING TAN		PORTAL TO PORT	
INDUSTRIAL INSUMABLICATION	GREASE TRAI		E	
COMMERCIAL LIBERTY	= LAGCON / DIC			
PRODUCTION WAST	_			
SEPTIC (ANK CESS	PCOL OTHER			
T FOOD PROCESSING				
VOLUME REMOVED:				
<b>.</b>		TROLL OFF DU		
<u>6000   GALLONS                                   </u>	MEHTC	CONTAINER SIZE:	_ 10 20	30 COTHER
WEIGHT		MISCELLANEOUS:		
GROSS WEIGHT	LSS.	EXTRA HOSE		_ FT. PH
TARE WEIGHT		LABOR		_
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MILEAGE:	DEPARTURE 205144	ODOMETER AT DES	TINATION 205	7225
ODONE: 28 M :	DEPARTURE	ODOMICTER AT DES		
□ VACUUM TRAILER ¥ 10 006 TRAIL	FR OTHER			
C VACCOM MALEN E 16 353 MINE				
NOTES/INSTRUCTIONS:	<u>-</u>			
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<b>4</b> 6				
S. S. P				
6월 5 폭				
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	1 Kol		DRIVER NAME:	47 1.
1 = E 40ha	5d 0-10		Kolles	O Make
DISPOSAL SITE SITE URE:			TRACTOR NO:	TRAILER NO:
3 H S			403	5710
<del>- 2 8</del>	<del></del>			

## VALLEY FORGE SEWER AUTHORITY NON-HAZARDOUS TRUCKED WASTE MANIFEST

... 29198

PINK: GENERATOR COPY

		<u> </u>		<del></del>		R-15,512
·		TRANSPO	RTER DATA	<b>.</b>		
DRIVER: Z-=- Z-	- LAERIN	<u>.                                    </u>	TRUCK N	UMBER: <u>403</u>	/ <del></del>	AD pH:
COMPANY:	اقادح	KAN PATAT	تِمُ TANK CAI	PACITY:	10000	GALLÓNS
CERTIFICATION: I,						-·
INDUSTRIAL G	ENERATO	R DATA ONLY —	MUST BE			AUTHORITY
GENERATOR NAME:	ころいいろ	E NAVAL S	TA DATE/TIM	•	,, , <del>'</del>	
ADDRESS:			المركرو	11/	~1	
TYPE OF WASTE: (CHECK	(CITY, STATE, 21)	PACKAGE PLANT  TREATMENT PLA	SLUDGE NT SLUDGE	Q LEA	CENERATOR REPRES  CHATE  HER	VFSA S
HOLDING GENERATOR NAME:		TA ONLY — MU		APPROVEI		
ADDRESS:						
			<u></u> -	(SIGNATURE O	F GENERATOR REPRES	ENTATIVO
TYPE OF GENERATOR: (C	(CITY, STATE, ZI	_		□ co	MMERCIAL	
RESIDENTIA	AL/COMM	ERCIAL GENERA	<del>~</del> -			TE ONLY
CUSTOMER	CUSTO	MER ADDRESS –	SEPTIC	CK TYPE OF W	PORTABLE	DATE/TIME OF
NAME		ET, TOWN, ZIP	TANK	TANK	TOILETS	PICKUP
	·					
			<u> </u>	<b></b>		
			<u> </u>	<b> </b>		<u></u>
			<del> </del>	<del> </del>		
1	İ		1	1		l

YELLOW: TRANSPORTER COPY

WHITE: VESA COPY

MODERN LANDFILL R.D. #9 York, PA 17402

Site Permit No. 100113

Document Refer No 9421865

(717) 755-2199 (Laboratory)

	NON-HAZARDOUS RESIDUAL WASTE MANIFEST
1.	Generator of Waste (must be filled in by producer) EPA I.D. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO
	Company Name: (Print or Type) // T.C. Parkpridge (U.S. Navy)
	Pick-up Address: Novi (Street) (City) (State) (Zip Code
	·
	Telephone Number: 4/2 - 27/2 - 29/22 SIC No
	Waste Stream Identification: This manifest represents a non-hazardous waste as per
	E.P.A. and PA D.E.R. regulations.
	Tons: Other (Specify):
	Special Handling Instructions, if any:
	MODERNID#: 10 1/2 / 2/4 / 3
to the	are in proper condition for transportation according to applicable state and federal law. The wastes were consigned to transporter named. I certify that the foregoing is true and correct to the best of my knowledge.  Signature:     1
 2.	Contractor: OHM Remodiation Services (00)
~	· Address: 200 Horizon Conter Blud, Trenton, NJ 08691
	Contact: Tom Joynes Phone: 609-584-8900
3.	Hauler of Waste (must be filled-in by hauler) EPA I.D. No. ADDO 7162 9.976
	COMPANY NAME SET TRANSPORTS ION CO. PHONE: 607) 769-2741
	ADDRESS: Rr 40 EMT P.O. COR 169 WOODSTOWN, NV - 03092
	Pick-up Date: <u>03-27-95</u> Truck No. <u>1050/3</u> Vehicle Lic. No. <u>XN65 SV</u> The above described waste was picked up and hauled by me to the disposal facility named below and was accepted. I certify under penalty of perjury that the fibregoing is true and correct.
	Signature of authorized agent and title:
4.	Disposer of Waste (must be filled-in by disposer)
	Company Name: (Print or Type):Modern_Landfill
	Site Location: R.D. #9 Prospect Rd., York, Pennsylvania 17402
	Waste subject to this manifest was delivered by the above hauler to this disposal facility and accepted on
	Signature of authorized agent and title:
	White, Green, Canary - Landfill Pink - Hauler Golden Rod - Generator

MODERN LANDFILL R.D. #9 York, PA 17402

Site Permit No. 100113

Document Refer No 9421863

(717) 755-2199 (Laboratory)

	NON-HAZARDOUS RESIDUAL WASTE MANIFEST
1.	Generator of Waste (must be filled in by producer) EPA I.D. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO
	Company Name: (Print or Type) N. T.C. Palakeri Ge
	Pick-up Address: 1907 110 acsist
	(No.) (Street) (City) (State) (Zip Code
	Telephone Number: 4/1 - 272 . 2.752 SIC No
	Waste Stream Identification: This manifest represents a non-hazardous waste as per
	E.P.A. and PA D.E.R. regulations.
	Tons: Cubic Yards: Other (Specify):
	Special Handling Instructions, if any:
_	MODERALID #:
L	MODERN ID #: 1995 2 2 2 3 5 1 5
and to th	is to certify that the above named materials are properly classified, described, packaged, marked, and labeled are in proper condition for transportation according to applicable state and federal law. The wastes were consigned to transporter named. I certify that the foregoing is true and correct to the best of my knowledge.  Signature:  Signature:
2.	Contractor: DHM Remediation Services Comp.
	Address: 200 Horizon Center Blud Trenton NJ 08691
	Contact: Tom Joyner Phone: 609-584-8900
3.	Hauler of Waste (must be filled-in by hauler) EPA I.D. No
	COMPANY NAME: SIJ Tr-10 PHONE:
	ADDRESS: At 46 Wood stewn No.
	Pick-up Date:
4.	Disposer of Waste (must be filled-in by disposer)
	Company Name: (Print or Type): Modern Landfill
	Site Location: R.D. #9 Prospect Rd., York, Pennsylvania 17402
	Waste subject to this manifest was delivered by the above hauler to this disposal facility and accepted on
	(DISPOSAL DATE)
	Signature of authorized agent and title:
	White, Green, Canary - Landfill Pink - Hauler Golden Rod - Generator

MODERN LANDFILL R.D. #9 York, PA 17402

Site Permit No. 100113

(717) 755-2199 (Laboratory)

Document Refer No 94 21864

	NON-HAZARDOUS RESIDUAL WASTE MANIFEST
1.	Generator of Waste (must be filled in by producer) EPA I.D. NO
	Company Name: (Print or Type) AFTC Cajabacidae
	Diek un Address: 120 T 30 30 SIT
	Pick-up Address:
	Telephone Number:
	Waste Stream Identification: This manifest represents a non-hazardous waste as per
	E.P.A. and PA D.E.R. regulations.
	Tons: Cubic Yards: Other (Specify):
	Special Handling Instructions, if any:
	MODERN ID #: ( )   3 - 25 - 2   2   2   2   3   4   4
L	
and	is to certify that the above named materials are properly classified, described, packaged, marked, and labeled are in proper condition for transportation according to applicable state and federal law. The wastes were consigned the transporter named. I certify that the foregoing is true and correct to the best of my knowledge.
Date	Signature: Want J. (Name and Title)
	,
2.	Contractor: OHM Remediation Services Cons
	Address: 200 Horizon Cente- Blvd. Trenton NJ 08691
	Contact: Tom Joynes Phone: 609-584-8900
3.	Hauler of Waste (must be filled-in by hauler) EPA I.D. No
	COMPANY NAME: SIJ Transport to Cu. PHONE: 607 769 2341
	ADDRESS: R+ 40 Wowlstown No.
	Pick-up Date: 3/35/9.5 Truck No. 1055 Vehicle Lic. No. X7 25GV No. The above described waste was picked up and hauled by me to the disposal facility named below and was accepted. I certify under penalty of perjury that the foregoing is true and correct.
	Signature of authorized agent and title: Place Dourse Drive Date: 3/3/55
4	Disposer of Waste (must be filled-in by disposer)
••	Company Name: (Print or Type): Modern Landfill
	Site Location: R.D. #9 Prospect Rd., York, Pennsylvania 17402
	Waste subject to this manifest was delivered by the above hauler to this disposal facility and accepted of
	Signature of authorized agent and title:
	White Green Canary - Landfill Pink Hauler Golden Rod - Generator



Environmental Services
P.O. Box 48
519 Royersford Road
Royersford, PA 19468
(610) 948-9377 • FAX (610) 948-6090

CUSTOMER PURCHASE ORDER NO:	TELEPHONE NO:		DATE:		
	410-378-4	1419	JUNE 15 1995		
CUSTOMER NAME:	ACCOUNT NO.	DISPOSAL SITE:			
OH MATERIALS		INTERNATIO	NAL PETROLEUM		
ADDRESS:		ADDRESS:			
200 HORIZON CENTE	2 RIVD	WILMINGTO	ON DE		
200 100 80. 000.00	· ·	MANIFEST NO:			
TRENTON NI 086	50	E-22083			
TERNON, 12 000					
TIME OF DEPARTURE	19:45 AN				
	1:15 AM	DEMURRAGE TIME	2001TS		
	2:45 PM	REASON FOR DELAY			
1111/2 01 7111111112 711 DIGI GG72 G172	13:30 PM				
TIME OF DEPARTURE FROM DISPOSAL SITE	14:45 PM				
TOTAL TIME	5:00				
☐ MUNICIPAL ☐ RAW SEWAGE	HOLDING TAN	к П	PORTAL TO PURIAL		
NO INDUSTRIAL SEWAGE SLUDGE	GREASE TRAP	· —	E		
COMMERCIAL   LEACHATE	LAGOON/DIG				
RESIDENTIAL   PRODUCTION WASTE	☐ WET WELL/P	= :			
SEPTIC TANK/CESSPOOL		LY WATE	RS		
☐ FOOD PROCESSING	UN OTHER				
VOLUME REMOVED: 5817		ROLL OFF DU	MP/ TRANSFER TRAILER		
1					
GALLONS	OTHER				
WEIGHT:		MISCELLANEOUS:	FT 011		
GROSS WEIGHT			FT. PH		
TARE WEIGHT		LABOR			
NET WEIGHT	_ LBS.	OTHER			
MILEAGE:	1200 A ( 1500 )				
ODOMETER AT DEPART	URE STATE OF THE S	ODOMETER AT DEST	NATION		
VACUUM TRAILER ☐ MC 306 TRAILER ☐	OTHER				
NOTES/INSTRUCTIONS:					
<b>5</b> 2	GE NAVA		<u>.</u> {		
			~		
PORT DE	Posit M	D			
}					
'					
<u></u>			DON/ED MANE		
EUSTOMER SIGNATURE: D	REP. FOR OHM	1 11100	DRIVER NAME:		
Junothy A. Dayer	·	US NAVY	TRACTOR NO: TRAILER NO:		
DISPOSAL SITE SIGNATURE:					
Wice Z			420 VT29		

### SPECIAL WASTE MANIFEST

GENERATOR INFO	ORMATION	Manifest No.: P22083
Disposal Code		Service Date: 6-15-95
Company Name	CH MATERIALS	ENTER BLVD
Address:	TRENTON, NJ OF	36 <b>5</b> 0
Phone #:		Contact:
WASTE	E TYPE	QUANTITY
Non-Hazardous	Oil and Water	6500 Gallons
I certify that knowledge.	; the above information	n is correct to the best of my
Date: <u>6/1</u>	5/37 Sign:	ature: Landy A. Land
	Title	e: AS REP FOR OHM AND US NAV
	d in compliance with o	owledge the waste described above surrent applicable regulations.
WASTE DISPOSAL	INFORMATION	a dialek dian 1900 (man dian 1900 man man 1917 Pangyama tahi, nyak tapatan alik man diangkan tahu dian 1917 (man dian tahu dian man
	NTERNATIONAL PETROLEUN ILMINGTON, DELAWARE	1 CORPORATION OF DELAWARE
Date Waste Rec	eived 6 1/5 195	
Waste Accepted	: Wa	aste Rejected:
If rejected, re	esection	••
	eason(s) for rejection	1:
I certify that for processing	the above waste was d	delivered to this disposal facilit

### HAZARDOUS WASTE MANIFEST

Department of the Environment - Waste Managemen 2500 Broening Highway Baltimore, MD 2	t Administration Hazardous
	Manifest Page 1 Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address BAMBRIDGE NAVAL BASE	A. State Manifest Document Number MDC 0551462  B. State Generator's ID Number
4 Generator's Phone ( )	C. State Transporter's ID  Vehicle Sticker Number
5. Transporter 1 (Company Name) 6. US EPA ID Number	D. Transporter's Phone
7. Transporter 2 (Company Name)  8. US EPA ID Number  8. US EPA ID Number	E. State Transporter's ID HWH  Vehicle Sticker Number  DC
7. Transporter 2 (Company Name)  8. US EPA ID Number  7. Transporter 2 (Company Name)  9. Designated Facility Name and Site Address  CLEAN HARBORS OF BALTIMORE, INC.	F. Transporter's Phone  (1) 8 17 18 00  G. State Facility ID  A151
G EALTIMORE, MD 21230 10. US EPA ID Number	H. Facility's Phone  4 1 0 - 2 4 4 - 8 2 0 0
R 11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)  12. Containe	rs 13. Total Quantity Unit 1. Waste No. Type W/Vol
8 R a. NON-DOT REGULATED HATERIAL OILY DEBRIS	N XX/600 G NONE
6. p. c.	
J. Additional Description for Materials Listed Above Physical HAZ CODE State Specific Gravity Percentage HAZ CODE State Speci	K. Handling Codes for
CC : 1 3	ific Gravity Percentage Waste Listed Above
b. 15. Special Handling Instructions and Additional Information IN CASE OF EMERGENCY CONTACT 1-806-OIL-TANK  TO NB4982	11a) U72428
15. Special Handling Instructions and Additional Information  IN CASE OF EMERGENCY CONTACT 1-800-OIL-TANK  16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and a and are classified, packed, marked and labeled, and are in all respects in proper condition for transpand national government regulations and Maryland Statutes or Regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume a determined to be economically practicable and that I have selected the practicable method of treat which minimizes the present and future threat to human health and the environment; OR if I am a small minimize my waste generation and select the best waste management method that is available to me a Printed/Typed Name  Signature	accurately described above by proper shipping name bort by highway according to applicable international and toxicity of waste generated to the degree I have ment, storage, or disposal currently available to me I quantity generator. I have made a good faith effort to
Printed/Typed Name  T 17. Transporter 1 (Acknowledgement of Receipt of Materials)  R Printed/Typed Name  Signature	Date U
T 11. Transporter 1 (Acknowledgement of Receipt of Materials)  R Printed/Typed Name  Signature  O 18. Transporter 2 (Acknowledgement of Receipt of Materials)  R Printed/Typed Name  Signature  Signature	Date Date
19. Discrepancy Indication Space	ON/REIG
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest e	Date

Previous editions are obsolete.

COPY 3 - FACILITY: DETACH & RETURN THIS COPY TO GENERATOR

## APPENDIX F NAVY ACCEPTANCE OF PROCURED MATERIALS

### **MEMORANDUM:**

From:

Engineering Field Activity, Cheaspeake, Code 1812

To: Subj: OHM Remediation Services Corp., Pittsburgh, Attn: Mr. Larry Stearns ACCEPTANCE OF MATERIALS PROCURED BY CONTRACTOR

This memorandum acknowledges the Navy's acceptance of the following items acquired by OHM Remediation Services Corp during the course of Remedial Actions performed under contract N62470-93-C-3032, Delivery Order 0014. All materials were inspected and accepted in place at NTC-Bainbridge at the time of final site demobilization.

Item No.	Description	Qty	U/M	Total Qty	Purchase Cost	Remarks/Condition
1.	Metal Pipe, corrugated, 24ft x 36in	21	lin ft	504	\$7020.72	used, good condition
2.	Gaskets, rubber, 36in	40	ea	40	N/A	used
3.	pipe collars, metal, 36in	24	ea	24	\$668.64	used, with bolts
4.	pipe elbows, 36in, 45 degree	4	ea	4	\$476.00	used, good
5.	corrugated metal pipe, bituminous coated, 24ft x 36in	2	lin ft	48	\$668.64	new
6.	Pipe collars, bitumen. coated, 36in	2	ea	2	\$55.72	new
7.	pipe, HDPE corrugated, 24ft x 24in	6	lin ft	144	\$1476.00	used, good
8.	Pipe collars, 24in, HDPE	6	ea	6	\$73.86	used
9.	Fence, chanin link, 6ft x 50ft	7	lin ft	350	\$612.50	new

Accepted by Navy

FRANK ZEPKA

Remedial Project Mgr.

Release by OHM Services, Inc: (

LAWRENCE J. STEARNS, P.E.

Project Manager

# APPENDIX G PERMITS AND AUTHORIZATIONS

JUL 26 '94 08:54AM WATER RES ADM MOG

P. 4/6

# STATE OF MARYLAND DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION

#### WATER APPROPRIATION AND USE PERMIT

TEMPORARY EMERGENCY PERMIT

PERMIT NUMBER: CE948042(01)

EFFECTIVE DATE:

JULY 1, 1984

EXPIRATION DATE:

OCTOBER 1, 1984

FIRST APPROPRIATION:

JULY 1. 1984

EFA-CHESAPEAKE, NAVAL FACILITIES ENGINEERING COMMAND

HEREINAFTER REFERRED TO AS THE "PERMITTEE", IS AUTHORIZED BY THE WATER RESOURCES ADMINISTRATION, HEREINAFTER REFERRED TO AS THE "ADMINISTRATION" PURSUANT TO THE PROVISIONS OF TITLE 8 of the NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED, TO APPROPRIATE AND USE WATERS OF THE STATE SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. ALLOCATION THE WATER WITHDRAWAL GRANTED BY THIS PERMIT IS LIMITED TO:
  A DAILY AVERAGE OF 1,400 GALLONS ON A YEARLY BASIS AND A MAXIMUM DAILY WITHDRAWAL OF 500,000 GALLONS.
- 2. USE THE WATER IS TO BE USED FOR DEWATERING AN OIL SEPARATION PIT DURING SOIL SAMPLING.
- 3. SOURCE THE WATER SHALL BE TAKEN FROM A SPRING FED PIT.
- 4. LOCATION THE POINT(S) OF WITHDRAWAL SHALL BE LOCATED AT THE FIRE TRAINING AREA, NORTHEAST OF RT-222, BAINBRIDGE NAVAL TRAINING CENTER, PORT DEPOSIT, CECIL COUNTY, MARYLAND.

P.5/6

### PERMIT NUMBER: CE94S042(01) PAGE NUMBER TWO

- FIGHT OF ENTRY THE PERMITTEE SHALL ALLOW AUTHORIZED REPRESENTATIVES OF THE ADMINISTRATION ACCESS TO THE PERMITTEE'S FACILITY TO CONDUCT INSPECTIONS AND EVALUATIONS MECESSARY TO ASSURE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT. THE PERMITTEE SHALL PROVIDE SUCH ASSISTANCE AS MAY BE NECESSARY TO EFFECTIVELY AND SAFELY CONDUCT SUCH INSPECTIONS AND EVALUATIONS.
- 6. PERMIT REVIEW THE PERMITTEE WILL BE QUERIED EVERY THREE YEARS (TRIENNIAL REVIEW) REGARDING WATER USE UNDER THE TERMS AND CONDITIONS OF THIS PERMIT. FAILURE TO RETURN THE TRIENNIAL REVIEW QUERY WILL RESULT IN SUSPENSION OR REVOCATION OF THIS PERMIT.
- 7. PERMIT RENEWAL THIS PERMIT WILL EXPIRE ON THE DATE INDICATED ON THE FIRST PAGE OF THIS PERMIT. IN ORDER TO RENEW THE PERMIT THE PERMITTEE SHALL FILE A RENEWAL APPLICATION WITH THE ADMINISTRATION NO LATER THAN 45 DAYS PRIOR TO THE EXPIRATION.
- 8. PERMIT SUSPENSION OR REVOCATION THIS PERMIT MAY BE SUSPENDED OR REVOKED BY THE ADMINISTRATION UPON VIOLATION OF THE CONDITIONS OF THIS PERMIT, OR UPON VIOLATION OF ANY REGULATION PROMULGATED PURSUANT TO TITLE 8 OF THE NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED.
- 9. CHANGE OF OPERATIONS ANY ANTICIPATED CHANGE IN APPROPRIATION WHICH MAY RESULT IN A NEW OR DIFFERENT USE, QUANTITY, SOURCE, OR PLACE OF USE OF WATER SHALL BE REPORTED TO THE ADMINISTRATION BY THE PERMITTEE BY SUBMISSION OF A NEW APPLICATION.
- ADDITIONAL PERMIT CONDITIONS THE ADMINISTRATION MAY AT ANYTIME (INCLUDING TRIENNIAL PERMIT REVIEW OR WHEN A CHANGE APPLICATION IS SUBMITTED) REVISE ANY CONDITION OF THIS PERMIT OR ADD ADDITIONAL CONDITIONS CONCERNING THE CHARACTER, AMOUNT, MEANS AND MANNER OF THE APPROPRIATION OR USE, WHICH MAY BE MECESSARY TO PROPERLY PROTECT, CONTROL AND MANAGE THE WATER RESOURCES OF THE STATE. CONDITION REVISIONS AND ADDITIONS WILL BE ACCOMPLISHED BY ISSUANCE OF A REVISED PERMIT.

P.6/6

### PERMIT NUMBER: CE94SO42(01) PAGE NUMBER THREE

- 11. NON-TRANSFERRABLE THIS PERMIT IS NON-TRANSFERRABLE. A NEW OWNER MAY ACQUIRE AUTHORIZATION TO CONTINUE THIS APPROPRIATION BY FILING A NEW APPLICATION WITH THE ADMINISTRATION. AUTHORIZATION WILL BE ACCOMPLISHED BY ISSUANCE OF A NEW PERMIT.
- \*\*INITIATION OF WITHDRAWAL THE PERMITTEE SHALL NOTIFY THE\*

  \* ADMINISTRATION BY CERTIFIED MAIL WHEN WITHDRAWALS FOR THE\*

  \* USES SPECIFIED IN THIS PERMIT HAVE BEEN INITIATED. THIS \*

  \* PERMIT SHALL EXPIRE IF WATER WITHDRAWAL IS NOT COMMENCED \*

  \* WITHIN TWO YEARS AFTER THE EFFECTIVE DATE OF THIS PERMIT \*

  \* EXCEPT THAT UPON WRITTEN REQUEST TO THE ADMINISTRATION \*

  \* PRIOR TO THE EXPIRATION OF THE TWO YEAR PERIOD, THE TIME \*

  \* LIMIT MAY BE EXTENDED FOR GOOD CAUSE, AT THE DISCRETION \*

  \* OF THE ADMINISTRATION.
- 13. FLOW-BY IN ORDER FOR WITHDRAWALS TO BE MADE UNDER THIS PERMIT, A TOTAL OF AT LEAST 0.01 CUBIC FRET OF WATER PER SECOND OF TIME (CFS) (4.5 CPM) MUST BE AVAILABLE AS FLOW-BY IMMEDIATELY DOWNSTREAM OF THE POND, WHEN INFLOW TO THE POND EXCEEDS 0.1 CFS. WHEN INFLOW DOES NOT EXCEED 0.1 CFS, THEN OUTFLOW FROM THE POND MUST EQUAL INFLOW IN ORDER FOR WITHDRAWALS TO BE MADE. ALL FLOW-BY MEASURING DEVICES AND THEIR LOCATIONS SHALL BE APPROVED BY THE ADMINISTRATION.

BY AUTHORITY OF THE DIRECTOR WATER RESOURCES ADMINISTRATION

LITERRANCE W. CLARK, CHIEF WATER RIGHTS DIVISION

#### STATE OF MARYLAND

### DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION

#### WATER APPROPRIATION AND USE PERMIT

PERMIT NUMBER: CE94S042(02)

EFFECTIVE DATE:

OCTOBER 1, 1994

EXPIRATION DATE:

JANUARY 1, 1995

FIRST APPROPRIATION:

OCTOBER 1, 1994

EFA-CHESAPEAKE, NAVAL FACILITIES ENGINEERING COMMAND

HEREINAFTER REFERRED TO AS THE "PERMITTEE", IS AUTHORIZED BY THE WATER RESOURCES ADMINISTRATION, HEREINAFTER REFERRED TO AS THE "ADMINISTRATION" PURSUANT TO THE PROVISIONS OF TITLE 8 of the NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED, TO APPROPRIATE AND USE WATERS OF THE STATE SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. ALLOCATION THE WATER WITHDRAWAL GRANTED BY THIS PERMIT IS LIMITED TO:
  A DAILY AVERAGE OF 1,400 GALLONS ON A YEARLY BASIS AND A MAXIMUM DAILY WITHDRAWAL OF 500,000 GALLONS.
- 2. USE THE WATER IS TO BE USED FOR DEWATERING AN OIL SEPARATION PIT DURING SOIL SAMPLING.
- 3. SOURCE THE WATER SHALL BE TAKEN FROM A SPRING FED PIT.
- 4. LOCATION THE POINT(S) OF WITHDRAWAL SHALL BE LOCATED AT THE FIRE TRAINING AREA, NORTHEAST OF RT-222, BAINBRIDGE NAVAL TRAINING CENTER, PORT DEPOSIT, CECIL COUNTY, MARYLAND.

### PERMIT NUMBER: CE94S042(02) PAGE NUMBER TWO

- RIGHT OF ENTRY THE PERMITTEE SHALL ALLOW AUTHORIZED REPRESENTATIVES OF THE ADMINISTRATION ACCESS TO THE PERMITTEE'S FACILITY TO CONDUCT INSPECTIONS AND EVALUATIONS NECESSARY TO ASSURE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT. THE PERMITTEE SHALL PROVIDE SUCH ASSISTANCE AS MAY BE NECESSARY TO EFFECTIVELY AND SAFELY CONDUCT SUCH INSPECTIONS AND EVALUATIONS.
- 6. PERMIT REVIEW THE PERMITTEE WILL BE QUERIED EVERY THREE YEARS (TRIENNIAL REVIEW) REGARDING WATER USE UNDER THE TERMS AND CONDITIONS OF THIS PERMIT. FAILURE TO RETURN THE TRIENNIAL REVIEW QUERY WILL RESULT IN SUSPENSION OR REVOCATION OF THIS PERMIT.
- 7. PERMIT RENEWAL THIS PERMIT WILL EXPIRE ON THE DATE INDICATED ON THE FIRST PAGE OF THIS PERMIT. IN ORDER TO RENEW THE PERMIT THE PERMITTEE SHALL FILE A RENEWAL APPLICATION WITH THE ADMINISTRATION NO LATER THAN 45 DAYS PRIOR TO THE EXPIRATION.
- 8. PERMIT SUSPENSION OR REVOCATION THIS PERMIT MAY BE SUSPENDED OR REVOKED BY THE ADMINISTRATION UPON VIOLATION OF THE CONDITIONS OF THIS PERMIT, OR UPON VIOLATION OF ANY REGULATION PROMULGATED PURSUANT TO TITLE 8 OF THE NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED.
- 9. CHANGE OF OPERATIONS ANY ANTICIPATED CHANGE IN APPROPRIATION WHICH MAY RESULT IN A NEW OR DIFFERENT USE, QUANTITY, SOURCE, OR PLACE OF USE OF WATER SHALL BE REPORTED TO THE ADMINISTRATION BY THE PERMITTEE BY SUBMISSION OF A NEW APPLICATION.
- 10. ADDITIONAL PERMIT CONDITIONS THE ADMINISTRATION MAY AT ANYTIME (INCLUDING TRIENNIAL PERMIT REVIEW OR WHEN A CHANGE APPLICATION IS SUBMITTED) REVISE ANY CONDITION OF THIS PERMIT OR ADD ADDITIONAL CONDITIONS CONCERNING THE CHARACTER, AMOUNT, MEANS AND MANNER OF THE APPROPRIATION OR USE, WHICH MAY BE NECESSARY TO PROPERLY PROTECT, CONTROL AND MANAGE THE WATER RESOURCES OF THE STATE. CONDITION REVISIONS AND ADDITIONS WILL BE ACCOMPLISHED BY ISSUANCE OF A REVISED PERMIT.

### PERMIT NUMBER: CE945042(02) PAGE NUMBER THREE

- 11. NON-TRANSFERRABLE THIS PERMIT IS NON-TRANSFERRABLE. A NEW OWNER MAY ACQUIRE AUTHORIZATION TO CONTINUE THIS APPROPRIATION BY FILING A NEW APPLICATION WITH THE ADMINISTRATION. AUTHORIZATION WILL BE ACCOMPLISHED BY ISSUANCE OF A NEW PERMIT.
- 12. PERMIT SUPERSESSION THIS PERMIT HAS BEEN REVIEWED AND REVISED AND SUPERSEDES THE APPROPRIATION AND USE GRANTED BY THE FOLLOWING PRIOR PERMIT ISSUED TO:

  EFA-CHESAPEAKE, NAVAL FACILITIES ENGINEERING COMMAND ON JULY 1, 1994 (CE94S042(01))

BY AUTHORITY OF THE DIRECTOR WATER RESOURCES ADMINISTRATION

TERRANCE/W. CLARK, CHIEF WATER RIGHTS DIVISION

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# STATE OF MARYLAND DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION

### WATER APPROPRIATION AND USE PERMIT

Post-It™ brand fax transmittal r	memo 76/1 # of pages > 6
"Frank Zepka	From MACK FILAR
	Ca. WRA
Dept.	Phone 974 - 2456
202.453 6193	Fax #

PERMIT NUMBER: CE94G043(01)

EFFECTIVE DATE:

JULY 1, 1994

RE:

EXPIRATION DATE:

JULY 1, 1997

LEACHATE FROM

FIRST APPROPRIATION:

JULY 1, 1994

LANDFILL SEEPS

EFA-CHESAPEAKE NAVAL FACILITIES ENGINEERING COMMAND PER F. ZEPKA

7/27/94 - WTS

HEREINAFTER REFERRED TO AS THE "PERMITTEE", IS AUTHORIZED BY THE WATER RESOURCES ADMINISTRATION, HEREINAFTER REFERRED TO AS THE "ADMINISTRATION" PURSUANT TO THE PROVISIONS OF TITLE 8 of the NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED, TO APPROPRIATE AND USE WATERS OF THE STATE SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. ALLOCATION THE WATER WITHDRAWAL GRANTED BY THIS PERMIT IS LIMITED TO:
  A DAILY AVERAGE OF 6,000 GALLONS ON A YEARLY BASIS AND A DAILY AVERAGE OF 10,000 GALLONS FOR THE MONTH OF MAXIMUM USE.
- 2. USE THE WATER IS TO BE USED FOR GROUND WATER REMEDIATION AT THE BAINBRIDGE LANDFILL.
- 3. SOURCE THE WATER SHALL BE TAKEN FROM MULTIPLE WELLS IN THE PORT DEPOSIT GNEISS.
- 4. LOCATION THE POINT(S) OF WITHDRAWAL SHALL BE LOCATED AT THE BAINBRIDGE NAVAL TRAINING FACILITY, ON THE SOUTHEAST SIDE OF RT-276, 0.8 MILE NORTHEAST OF PORT DEPOSIT, CECIL COUNTY, MARYLAND.

#### PERMIT NUMBER: CE94G043(01) PAGE NUMBER TWO

- 5. RIGHT OF ENTRY - THE PERMITTEE SHALL ALLOW AUTHORIZED REPRESENTATIVES OF THE ADMINISTRATION ACCESS TO THE PERMITTEE'S FACILITY TO CONDUCT INSPECTIONS AND EVALUATIONS NECESSARY TO ASSURE COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT. THE PERMITTEE SHALL PROVIDE SUCH ASSISTANCE AS MAY BE NECESSARY TO EFFECTIVELY AND SAFELY CONDUCT SUCH INSPECTIONS AND EVALUATIONS.
- PERMIT REVIEW THE PERMITTEE WILL BE QUERIED EVERY THREE 6. YEARS (TRIENNIAL REVIEW) REGARDING WATER USE UNDER THE TERMS AND CONDITIONS OF THIS PERMIT. FAILURE TO RETURN THE TRIENNIAL REVIEW QUERY WILL RESULT IN SUSPENSION OR REVOCATION OF THIS PERMIT.
- PERMIT RENEWAL THIS PERMIT WILL EXPIRE ON THE DATE 7. INDICATED ON THE FIRST PAGE OF THIS PERMIT. IN ORDER TO RENEW THE PERMIT THE PERMITTEE SHALL FILE A RENEWAL APPLICATION WITH THE ADMINISTRATION NO LATER THAN 45 DAYS PRIOR TO THE EXPIRATION.
- PERMIT SUSPENSION OR REVOCATION THIS PERMIT MAY BE 8. SUSPENDED OR REVOKED BY THE ADMINISTRATION UPON VIOLATION OF THE CONDITIONS OF THIS PERMIT, OR UPON VIOLATION OF ANY REGULATION PROMULGATED PURSUANT TO TITLE 8 OF THE NATURAL RESOURCES ARTICLE, ANNOTATED CODE OF MARYLAND (1990 REPLACEMENT VOLUME) AS AMENDED.
- CHANGE OF OPERATIONS ANY ANTICIPATED CHANGE IN 9. APPROPRIATION WHICH MAY RESULT IN A NEW OR DIFFERENT USE, QUANTITY, SOURCE, OR PLACE OF USE OF WATER SHALL BE REPORTED TO THE ADMINISTRATION BY THE PERMITTEE BY SUBMISSION OF A NEW APPLICATION.
- ADDITIONAL PERMIT CONDITIONS THE ADMINISTRATION MAY AT 10. ANYTIME (INCLUDING TRIENNIAL PERMIT REVIEW OR WHEN A CHANGE APPLICATION IS SUBMITTED) REVISE ANY CONDITION OF THIS PERMIT OR ADD ADDITIONAL CONDITIONS CONCERNING THE CHARACTER, AMOUNT, MEANS AND MANNER OF THE APPROPRIATION OR USE, WHICH MAY BE NECESSARY TO PROPERLY PROTECT, CONTROL AND MANAGE THE WATER RESOURCES OF THE STATE. CONDITION REVISIONS AND ADDITIONS WILL BE ACCOMPLISHED BY ISSUANCE OF A REVISED PERMIT.

### PERMIT NUMBER: CE94G043(01) PAGE NUMBER THREE

11. NON-TRANSFERRABLE - THIS PERMIT IS NON-TRANSFERRABLE. A NEW OWNER MAY ACQUIRE AUTHORIZATION TO CONTINUE THIS APPROPRIATION BY FILING A NEW APPLICATION WITH THE ADMINISTRATION. AUTHORIZATION WILL BE ACCOMPLISHED BY ISSUANCE OF A NEW PERMIT.

\* INITIATION OF WITHDRAWAL - THE PERMITTEE SHALL NOTIFY THE\*

\* ADMINISTRATION BY CERTIFIED MAIL WHEN WITHDRAWALS FOR THE\*

\* USES SPECIFIED IN THIS PERMIT HAVE BEEN INITIATED. THIS \*

\* PERMIT SHALL EXPIRE IF WATER WITHDRAWAL IS NOT COMMENCED \*

\* WITHIN TWO YEARS AFTER THE EFFECTIVE DATE OF THIS PERMIT \*

\* EXCEPT THAT UPON WRITTEN REQUEST TO THE ADMINISTRATION \*

\* PRIOR TO THE EXPIRATION OF THE TWO YEAR PERIOD, THE TIME \*

\* LIMIT MAY BE EXTENDED FOR GOOD CAUSE, AT THE DISCRETION \*

\* OF THE ADMINISTRATION.

13. WATER LEVEL MEASUREMENTS - FOR ALL THE APPLICANT'S WELLS FOUR (4) INCHES IN DIAMETER OR LARGER, PUMPING EQUIPMENT SHALL BE INSTALLED SO THAT WATER LEVELS CAN BE MEASURED DURING PUMPING AND NONPUMPING PERIODS WITHOUT DISMANTLING ANY EQUIPMENT. ANY OPENING FOR TAPE MEASUREMENTS OF WATER LEVELS SHALL HAVE A MINIMUM INSIDE DIAMETER OF 0.5 INCHES AND BE SEALED BY A REMOVABLE CAP OR PLUG. THE PERMITTEE SHALL PROVIDE A TAP FOR TAKING RAW WATER SAMPLES BEFORE WATER ENTERS A TREATMENT FACILITY, PRESSURE TANK, OR STORAGE TANK.

BY AUTHORITY OF THE DIRECTOR WATER RESOURCES ADMINISTRATION

TERRANCE W. CLARK, CHIEF WATER RIGHTS DIVISION



William Donald Schaefer Governor

### Maryland Department of Natural Resources Water Resources Administration

Tawes State Office Building Annapolis, Maryland 21401 Torrey C. Brown, M.D. Secretary

Robert D. Miller
Director

"A Commitment to Excellence in Managing Maryland's Water Resources"

July 20, 1994

DEPARTMENT OF THE NAVY ENGINEERING FIELD ACTIVITY CHESAPEAKE ATTN: FRANK ZEPKA 901 M STREET S.E., BUILDING 212 WASHINGTON, D.C. 20374-5018

Application Tracking Number: 199467226/94-NT-0582

199467229/94-NT-0583

Project: Bainbridge Naval Training Center, Environmental Remediation Activities Contact Person: Bob Cooper (410)974-3841

Dear Mr. Zepka:

The Nontidal Wetlands and Waterways Division of the Water Resources Administration (WRA), in coordination with the U.S. Army Corps of Engineers and the Maryland Department of the Environment, has completed a preliminary review of your applications for an activity in a floodplain, waterway, nontidal wetland or buffer. The review was done in accordance with Natural Resources Articles 8-203, 8-801 thru 814 and 8-1201 thru 1211, Annotated Code of Maryland, COMAR 08.05.03 and 08.05.04.

In accordance with your requests to allow some minor wetlands impact to allow for some preliminary investigative activities to be performed on the site, we have issued an Authorization to Proceed (ATP) for these activities. To facilitate the processing of these applications the ATP was issued under tracking number 199467226/94-NT-0582, and the remainder of the proposed site activities will be reviewed under tracking number 199467229/94-NT-0583.

We regret to inform you that your joint Federal/State application (#199467229/94-NT-0583) is incomplete and that the reviewing agencies are unable to continue processing. To complete your application, please send us the following

Telephone: (410) 974-3841

DNR TTY for the Deaf: 301-974-3683

7/25/94 Stutus

#### information:

- 1) A field review was conducted on July 11, 1994 for the purpose of verifying the wetlands delineation on the site. As a result, it was determined that the delineation was incorrectly flagged in a few areas. It was also observed that the dimensions of the wetlands on the plan sheets provided did not correspond to actual limits, apparently due to lack of a survey of the delineation. A second field review has been scheduled for July 21, 1994 to re-flag the incorrect areas. Upon completion of the re-flagging it will be necessary to survey the wetlands boundaries and show the surveyed boundaries on the plans.
- 2) In addition to showing the surveyed wetland boundaries, the plans must also show the 25 foot buffer regulated by the State, show all stream channels and the limits of disturbance for all proposed site activities.
- 3) At the time of the field review, an additional area of work, involving an area of pesticide contamination was identified. This work must be included in this application so the project can be reviewed in its entirety. In addition, identify if any additional activities will be required on site for the remediation.
- 4) Please revise the computations of the proposed areas of impact to the nontidal wetlands and specify the amount of impact to the buffer. The computations should specify the areas of impact for each activity, and identify whether impacts will result in permanent loss of wetlands or whether the wetlands to be impacted will be restored (temporary impact).
- 5) Please provide a restoration plan for those areas temporarily impacted and a Phase I mitigation plan for wetland losses. You were sent a correspondence by facsimile transmittal that outlines the information needed for Phase I review. Please be certain that <u>all</u> the requested information is included.

Please provide three copies of the requested information and reference the application tracking number on all correspondence pertaining to this project. As soon as this information is provided, joint review of your application will be promptly continued. If we do not hear from you within 120 days of the date of this letter, it will be assumed that you are no longer pursuing authorization for your project. Processing of your application will be suspended, and the application will be returned to you and considered to be withdrawn. If you then wish to pursue authorization for your project, it will be necessary to submit a new joint State/Federal application to the Permit Service Center. The application will receive a new tracking number, and will be evaluated based on the regulations and policies in effect on the new receipt date.

If you have any questions regarding the information needed, please call the contact person at the above number. Please have your application tracking number available when you call.

Sincerely,

Robert P. Cooper Project Manager

Nontidal Wetlands and Waterways Division

CC: U.S. Army Corps of Engineers (Terry Dean)
 Maryland Department of the Environment (WQC)
 MDE - Waste Management ERRP (Isis Otero)

#### STATE OF MARYLAND

### DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION

#### AUTHORIZATION TO PROCEED

AUTHORIZATION NUMBER: 94-NT-0582/199467226

EFFECTIVE DATE: July 20, 1994
EXPIRATION DATE: July 20, 1996

AUTHORIZED PERSON: Department of The Navy

Engineering Field Activity Chesapeake

Attn: Frank Zepka

Washington Navy Yard Building 212

901 M Street SE

Washington, D.C. 20374-5018



A REVIEW OF THE ABOVE REFERENCED PROJECT HAS BEEN COMPLETED BY THE NONTIDAL WETLANDS & WATERWAYS DIVISION (ADMINISTRATION). IN ACCORDANCE WITH NATURAL RESOURCES ARTICLE §8-803(A) AND §8-1206(A), COMAR 08.05.03.10 AND THE FOLLOWING CONDITIONS, YOU ARE HEREBY AUTHORIZED TO PERFORM THE FOLLOWING ACTIVITIES IN A NONTIDAL WETLAND, NONTIDAL WETLAND BUFFER, AND/OR IN A 100-YEAR FLOODPLAIN, IN ACCORDANCE WITH CONDITIONS OF AUTHORIZATION (ATTACHED), AND AS DESCRIBED BELOW:

Authorization to perform investigative activities to determine the limits of an abandoned landfill, to evaluate the extent of soil contamination in an abandoned oil separator pit area, and to install a leachate collection system to remediate an identified contaminated seep. The authorized activities are located at the site of the former Bainbridge Naval Training Center, near Port Deposit, Cecil County. The authorized activities involve:

A) Landfill Limits Verification: This work will include clearing wetland and buffer vegetation at a width of approximately 8 feet to allow for a small excavator to access the site. The excavator will dig test pits approximately 4 feet by three feet in area. The excavated soil will be returned to the test pit upon completion.

B) Oil Separator Pit Investigation: This work involves the removal of vegetation in the buffer and the "flattening" of wetland vegetation (predominantly Phragmites australis) to collect sediment samples within, and adjacent to the pit. Temporary dewatering of the pit may also be needed.

C) Leachate Collection System: This will require excavation of soil for a lined french drain trench, installation of a scour protection barrier between the trench and the stream, and pumping the leachate from the trench into storage tanks. The Leachate Collection System will result in loss of approximately 200 square feet of nontidal wetlands.

MD Grid Coordinates: 539,000 ± N, 956,000 ± E

William A. Jenkins, Chief

Nontidal Wetlands & Waterways Division

Attachments:

Conditions of Authorization

cc: U.S. Army Corps of Engineers (Terry Dean)

Maryland Department of the Environment (WQC)

MDE - Waste Management ERRP (Ms. Isis Otero)

WRA Enforcement Division w/ file

Telephone: 410-974-3841 DNR TTY for the Deaf: 410-974-3683

DNR/WRA 0091

THE FOLLOWING CONDITIONS OF AUTHORIZATION APPLY:

#### SPECIAL CONDITIONS

- 1. This Authorization to Proceed does not imply that a decision has been made as to whether the remainder of the remediation work at the site, currently under review (tracking #94-NT-0583/199467229), will qualify for authorization.
- 2. The 200 square feet of nontidal wetlands loss for the Leachate Collection System will be included in the cumulative impacts for the remainder of the site work for mitigation purposes.
- 3. Vegetation clearing shall be minimized to the greatest extent practicable to allow the investigative work to be performed.

#### GENERAL CONDITIONS

- 1. Validity: Authorization is valid only for use by Authorized Person.
- 2. <u>Responsibility and Compliance</u>: Authorized Person is fully responsible for all work performed. A copy of this Authorization shall be kept at the construction site. In accordance with §8-814 and §8-1210, Natural Resources Article, Annotated Code of Maryland, penalties may be assessed for violations.
- 3. <u>Failure to Comply</u>: If Authorized Person, its employees, agents or contractors fail to comply with Authorization to Proceed, the Administration may, in its discretion, issue an administrative order requiring that all activities which violate this Authorization be stopped, or the Administration may take any other enforcement action available to it by law.
- 4. Other Approvals: Authorized Person shall obtain all other required federal, State and local approvals prior to starting work.
- 5. <u>Inspection Access and Notification</u>: Authorized Person shall allow Administration personnel to conduct compliance inspections during normal business hours. Authorized Person shall notify the Administration's Enforcement Division at least five (5) days before starting activities authorized by Permit and five (5) days after completion. For Frederick, Washington, Allegany and Garrett counties, Authorized Person shall call the Frostburg office at (301) 689-8494. For all other counties, call the Annapolis office at (410) 974-2641.
- 6. <u>Best Management Practices During Construction</u>: Authorized Person shall conduct authorized activities in a manner consistent with the attached Best Management Practices, if applicable.
- 7. <u>Disposal of Excess</u>: Unless specifically authorized, all excess fill, spoil material, debris, and construction material shall be disposed of outside of nontidal wetlands, nontidal wetlands buffers, waterways, or the 100-year floodplain, and in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands.
- 8. <u>Temporary Impacts</u>: Temporary construction trailers or structures, staging areas, stockpiles and stream access crossings shall not be located within nontidal wetlands, nontidal wetlands buffers, or the 100-year floodplain unless specifically authorized.
- 9. <u>Instream Construction Prohibition</u>: No instream activities are approved under this Authorization to Proceed.
- 10. <u>Vegetative Stabilization</u>: All disturbed areas shall be stabilized vegetatively no later than seven (7) days after the investigative activities are completed. All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (<u>Lolium multiflorum</u>), Millet (<u>Setaria italica</u>), Oats (<u>Uniola sp.</u>), and/or Rye (<u>Secale cereale</u>). Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands Division. Kentucky 31 fescue <u>shall not</u> be utilized in the wetland or buffer.
- 11) <u>Equipment Operation:</u> Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetlands.



## DEPARTMENT OF THE ARMY BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS P.O. BOX 1715 BALTIMORE, MD 21203-1715

Operations Division

JUL 2 0 1994

Subject: CENAB-OP-RR(DEPT OF NAVY/NAVAL TRNG CTR TEST

PITS) 94-67226-5

Commanding Officer
Engineering Field Activity -Chesapeake
Naval Facilities Engineering Command
c/o Mr. Frank Zepka
901 M. Street S.E., Building 212
Washington, District of Columbia 20374-5018

Dear Mr. Zepka:

I am replying to your subject application dated June 6, 1994, and received as complete on July 19, 1994, for Department of the Army (DA) authorization to excavate test pits within nontidal wetlands in order to confirm the existing landfill limits and to evaluate the extent and magnitude of contamination in a fire training area. An eight-foot wide path will be cleared within wetlands adjacent to the existing landfill as necessary, and test pits measuring three feet by four feet will be excavated as required. Once testing has been completed, the excavated soil will be returned to the pits, the original the pre-excavation contours will be re-established, and the areas will be allowed to revegetate naturally. Within the existing oil separator pit, vegetation will be flattened or cleared as necessary, standing water greater than 18 inches in depth will be removed, and soil samples will be collected using a lexan tube in the soft bottom. Any water removed from the pit will be pumped into temporary storage pools in an upland area of the site (not Waters of the United States, including jurisdictional wetlands) for treatment until discharge can be arranged. The work is proposed in nontidal wetlands draining into Happy Valley Branch, at the former Naval Training Center/current Chesapeake Job Corps Center, at MD Route 22, Bainbridge, Cecil County, Maryland.

This waterway has been determined to be within our regulatory jurisdiction and the activity proposed does require DA authorization.

Our evaluation has determined that the proposed work, if accomplished in accordance with the enclosed plan(s), is authorized by Nationwide Permit(s) (NWP) for purposes of Section 10 of the River and Harbor Act of 1899 and/or Section 404 of the Clean Water Act as published in the November 22, 1991 issue of the Federal Register, Title 33 part 330, NWP number 6, provided all State authorizations are granted. If any of the information contained in the application and/or plan(s) is later found to be in error, this authorization may be subject to modification, suspension, or revocation.

Enclosed is a list of conditions which must be followed for purposes of the NWP(s) and the management practices which should be followed in performing the work. In addition, by copy of this letter, we are advising the Maryland Department of Natural Resources and the Maryland Department of the Environment of this decision.

This verification is valid for two years from the date of this letter, unless the NWP is modified, reissued, or revoked. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice announcing the changes when they occur. Furthermore, if you commence or are under contract to commence this activity before the date the NWP is modified or revoked, you will have 12 months from the date of the modification or revocation to complete the activity under the present terms and conditions of this NWP.

After you have obtained all required Federal, State and/or local authorizations, and have complied with the appropriate local critical area regulations, you may proceed with the authorized work.

If you have any questions concerning this matter, please call Mr. Terry Dean of this office at (410)962 2070.

Sincerely,

Thaddeus J. Rugiel

Acting Chief, River Basin Section

Enclosure

cc: Voe Hautzenroder

MD DNR, Nontidal Wetlands
MD DNR, Coastal Zone Unit

MDE

Cecil County

#### Nationwide Permit 6 (33 CFR 330 Appendix A)

(6) <u>Survey Activities</u>. Survey activities including core sampling, seismic exploratory operations, and plugging of seismic shot holes and other exploratory-type bore holes. Drilling and the discharge of excavated material from test wells for oil and gas exploration is not authorized by this nationwide permit; the plugging of such wells is authorized. Fill placed for roads, pads and other similar activities is not authorized by this nationwide permit. The discharge of drilling muds and cuttings may require a permit under section 402 of the Clean Water Act.

#### **Kationvide Permit Conditions:**

General Conditions: The following general conditions must be followed in order for any authorization by a nationwide permit to be valid:

- 1. MAYIGATION. No activity may cause more than a minimal adverse effect on navigation.
- 2. PROPER MAINTENANCE. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
- 3. EROSION AND SILTATION CONTROLS. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.
- 4. AGUATIC LIFE MOVEMENTS. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.
- 5. EQUIPMENT. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.
- 6. REGIONAL AND CASE-BY-CASE COMDITIONS. The activity must comply with any regional conditions which may have been added by the division engineer (see CFR 330.4(e)) and any case specific conditions added by the Corps.
- 7. WILD AND SCENIC RIVERS. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a Mstudy riverM for possible inclusion in the system, while the river is in an official study status. Information on Wild and Scenic Rivers may be obtained from the National Park Service and the U.S. Forest Service.
- 8. TRIBAL RIGHTS. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
- 9. MATER QUALITY CERTIFICATION. In certain states, an individual state water quality certification must be obtained or waived (see 33 CFR 330.4(c)).
- 10. COASTAL ZONE MAMAGEMENT. In certain states, an individual coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)).
- 11. ENDANGERED SPECIES. No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Information on the location of threatened and endangered species and their critical habitat can be obtained from the U.S. Fish and Wildlife Service and National Marine Fisheries Service. (see 33 CFR 330.4(f))
- 12. MISTORIC PROPERTIES. No activity which may affect Historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR 325, appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see CFR 330.4(g)).
- 13. MOTIFICATION. a) Where required by the terms of the NWP, the prospective permittee must notify the District Engineer as early as possible and shall not begin the activity:
- (1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or
  - (2) If notified by the District or Division Engineer that an individual permit is required; or

submit a mitigation plan, the District Engineer will expeditiously review the proposed mitigation plan, but will not commence a second 30-day notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant informing him that the project can proceed under the terms and conditions of the nationwide permit.

- (e) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 30-day period will not start until the wetland delineation has been completed.
- (f) Mitigation: Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:
- (1) To be practicable the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of overall project purposes;
- (2) To the extent appropriate, the permittee should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, which contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands.

Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited: reducing the size of the project; establishing buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address impacts and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the nationwide permits (e.g. 5 acres of wetlands cannot be created to change a 6 acre loss of wetlands to a 1 acre loss; however, the 5 created acres can be used to reduce the impacts of the 6 acre loss).

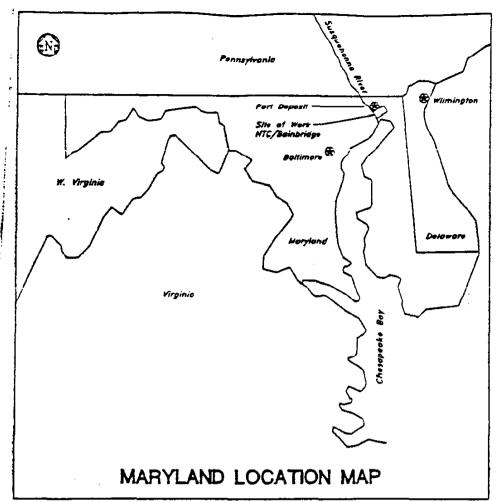
Regional Condition - The "Notification" provision of Nationwide Permits 5, 7, 13, 14, 17, 18, 21, 26, 33, 34, 37, 38, and, as required by regional condition, Nationwide Permits 11, 23, 28, and 35, shall be satisfied by the submission of a permit application prepared in accordance with the established Corps of Engineers permit application procedures for that locality. Drawings are to be submitted on 8 1/2 by 11 inch paper. The Corps' 30-day review period shall commence with the receipt of a completed application at the Corps District Office. In addition to the requirements in (b)(1) - (5) above, for Nationwide Permit 28 the following information must also be submitted:

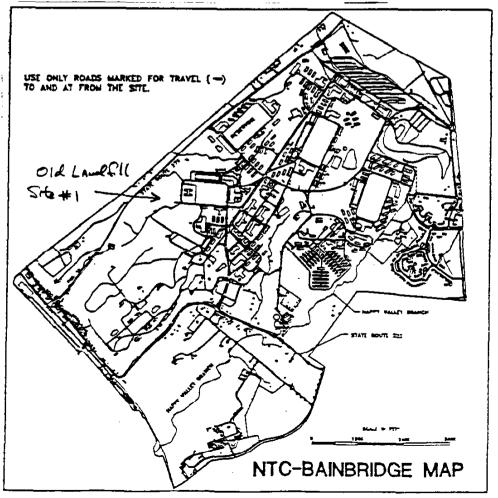
- (1) Drawings showing the configuration of existing structures; and
- (2) For projects located on a waterway containing an authorized Federal Navigation Channel, the drawings must indicate the distance to the edge of the authorized channel. In addition to the requirements in (b) (1) (5) above, for Nationwide Permit #35 the following information must also be submitted:
  - a) A survey of submerged aquatic vegetation; and
  - b) Drawings showing the dimensions (width and depth) of previous dredging.

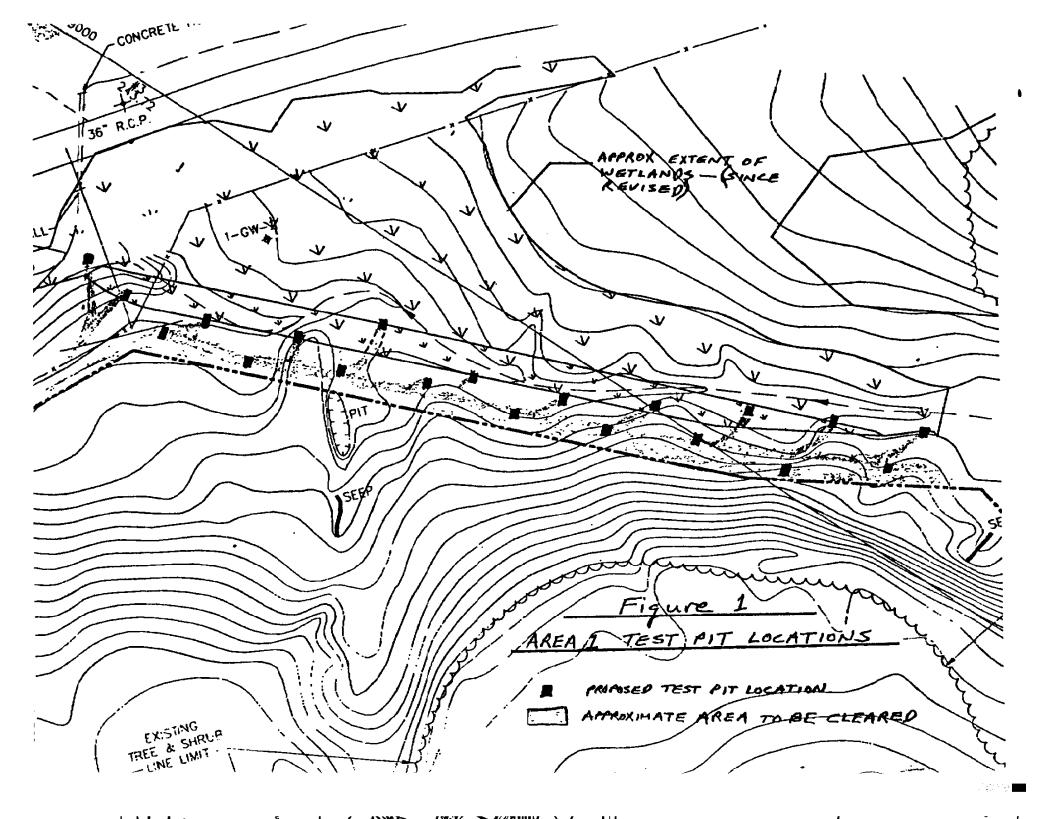
#### Section 404 Only Condition:

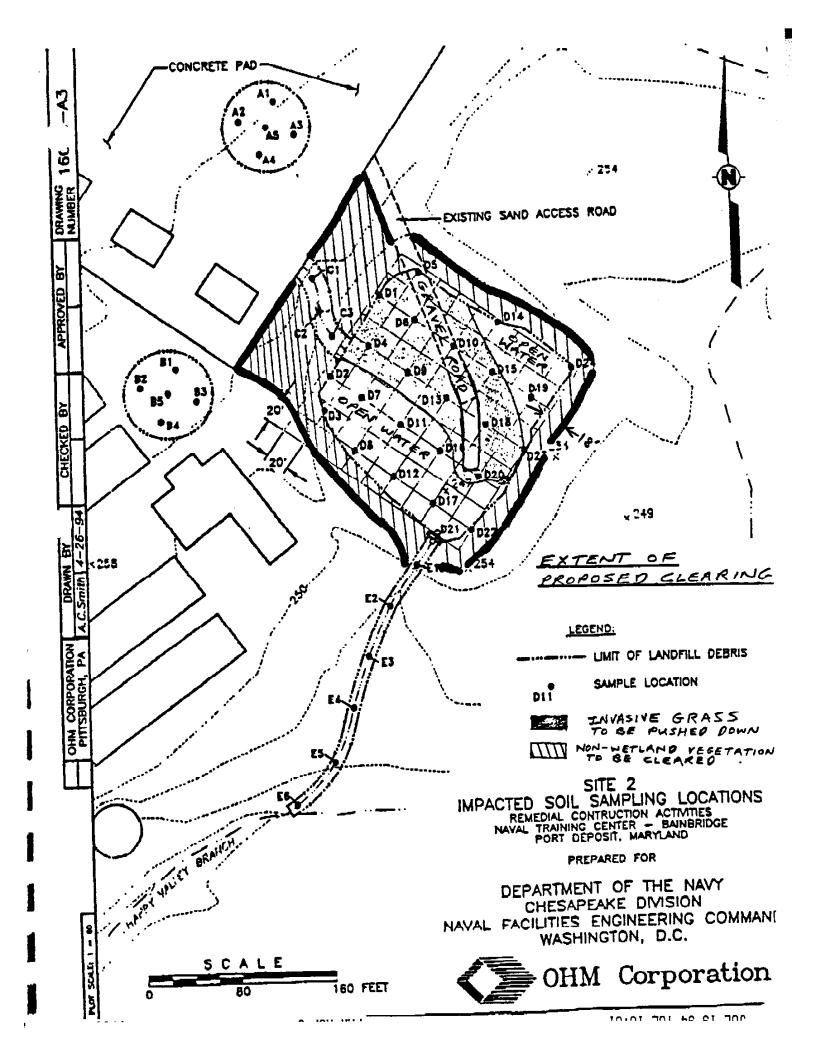
In addition to the General Condition, the following conditions apply only to activities that involve the discharge of dredged or fill material and must be followed in order for authorization by the nationwide permits to be valid:

- 1. WATER SUPPLY INTAKES. No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.
- 2. SHELLFISH PRODUCTION. No discharge of dredged or fill material may occur in areas of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by Nationwide Permit 4.
- 3. SUITABLE MATERIAL. No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).









# JOINT FEDERAL/STATE APPLICATION FOR THE ALTERATION OF ANY FLOODPLAIN, WATERWAY, TIDAL OR NONTIDAL WETLAND IN MARYLAND

FOR AGENCY USE ONLY				
^oplication number Date Determined Completete received by State Date(s) Returned				
Type of State permit needed	Date of Field Review			
Type of Corps permit needed	Agency Performed Field Review	·		
+++++++++++++	- + + + + + + + + + + + + + + + + + + +	++++++++++++++++		
◆Please submit 1 original and 4 co;	pies of this form, required maps and plans to	the Wetlands and Waterways Program as		
noted on the last page of this form				
<ul> <li>Any application which is not comp</li> </ul>	pleted in full or is accompanied by poor qualit	ty drawings may be considered incomplete		
and result in a time delay to the ap	plicant.			
Please check one of the following:	199467226 1	No 1001 NOVE		
	AMENDMENT: MODIFICATION TO AN I			
JURISDICTIONAL DETERMINATION	NONLY APPLYING FOR AUTHORIZATIO	N <u>X</u>		
PREVIOUSLY ASSIGNED NUMBER	(RESUBMITTALS AND AMENDMENTS)	DATE		
1. APPLICANT INFORMATION:				
I. All Elganti III. Stimmers				
APPLICANT NAME:				
A. Name: Commanding Officer	B. Daytime Telephone: [ ]			
C. Company: Engineering Field Act	<u>rivity-Chesapeake, Naval Facilities Engineerin</u>	ng Command		
D. Address: 901 M Street S.E. Bui	Idina 212			
City:	State: Washington, D.C.	Zip: 20374-5018		
AGENT/ENGINEER INFORMATION:  A. Name: Frank Zepka C. Company: Engineering Field Act	B. Daytime Telephone: (ivity-Chesapeake, Naval Facilities Engineering	202) 685-3279 ng Command		
D. Address: 901 M Street S.E. Bui	Iding 212	T. 00024 F040		
E. City:	State: Washington, D.C.	Zip: 20374-5018		
ENVIRONMENTAL CONSULTANT:				
A. Name: Mr. John Walter	B. Daytime Telephone:	(703) 841-9716		
C. Company: <u>Ecology and Environs</u>	ment			
D. Address: Rosalyn Center 1700				
E. City: Arlington	State: <u>Virginia</u>	Zip:_22209		
		JUN 10 1994		
		507		
CONTRACTOR (If Known): Not Kni	own At this time	Mater		
A Ataman	B. Daytime Telephone: ()	Water nesources Admin.		
		Permit Service Center		
C. Company:				
D. Address: E. City:	State:	Zip:		
PRINCIPAL CONTACT:				
Name: Joe Hautzenroder, Code	B. Daytime Telephone: (	202) 685-3447		
c. Company: Engineering Field Act		·		
D. Address: 901 M Street SE, Build				
	State: Washington, D.C.	Zip: 20374-5018		

a. GIVE WRITTEN DESCRIPT and Liability Act (CERCLA) re action is to place a surface of	sponse action to over the lan	to remo	ediate a	contamin dude sur	ated site. ace infiltr	The site is ation of rai	an abandoned landfill. T n water to reduce or elin	he proposed nanite direct
contact pathways for site greats during capping operation as any potion of the project	ns PPc	Jec	Fo	r The	NPPU.	CALLION .	TEST PITS:	t co
b. ACTIVITY: Check all activappropriate.	ities that are	propos	ed in the	wetland	, waterw	By, floodpi	ain, and nontidal wetlar	nd buffer as
	flooding or im draining	poundi	ng wate			_	troying vegetation tructures	
Area for item(s) checked: Wi						Only)(sq.ft.		
Length of stream affected <u>1</u>	5(linear	feet)						
c. TYPE OF PROJECTS: Proje	ect Dimension	s						
For each activity, give overa disturbance in square feet in column 4. For dam or small of fill or dredged material in o	column 3. I ponds, give a	For act	ivities in	tidal wa	ters, give	maximum	distance channelward	(in feet) in
	Length (Ft.)			Maximu Channe Encroad		e Pond Depth	Volume of fill/dredge material (cubic yards Depth below MHW o	_
	1	2	3	4		5	6	
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BRevetment*	<del></del>						<del></del>	
CVegetative Stabilization					<del></del>			
DGabions		_			_		_	
Groins Jetties				_			<del>-</del>	
Serties 3Boat Ramp		_			<del></del>			
IPier*	<del></del>			_			<del>-</del>	
Breakwater							<del></del>	A
. X Repair & Maintenance	300	<del></del>	15.0	<del>00 -</del> j		_	<del></del>	TOD
CRoad Crossing	<del></del>						<u> </u>	
Utility Line							_	1701
A. X Outfall Construction  L. Small Pond	100	15	1.50	<u>•</u> .	<del>-</del> -	_		( - 2
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Lot Fill				•	<del></del>		<del></del>	
1Building Structures		_					<u> </u>	
Culvert		_			<del>_</del>		<del></del>	
iBridge							_	
Stream Channelization		_				_		
Parking Area								
Dredging*		—		—		_		
1New	intenance		_Hydrau	lic	4Mec	hanical		•
V. X_Other (explain) <u>Installa</u> rea_northeast of the landfill v								

\*\*\*\*\*\*For projects indicated with an asterik refer to the sample plans and checklists found in the January, 1988 Joint Application booklet.

Gemeensation, and Liability Act (CERCLA) to facilitate transfer of the property from the Navy to the State of Matyland  A. PROJECT LOCATION:  a. LOCATION INFORMATION  A. Country: Cecil B. City: Bainbridge C. Name of waterway or closet waterway: Happy Valley Brand D. State stream use class designation: E. Site Address or Location: Former Naval Training Center/ Current Chesapeake. Job Corps Center F. Directions from nearest intersection of two state roads: Take Route 222 toward Port Deposit at the intersection interstate 55 and Route 227. Go approximately 2 miles and look for the main date on the Joht. Proceed through it mainpast to the northern portion of Gilmore Road.  G. Is your project located in the Chesapeake Bay Critical Area (generally within 1000 feet of tidal waters or tid wetlands)?:  — Yes X. No  H. County Book Map Coordinates (Alexandria Drafring Co.); Excluding Garrett and Somerset Counties: Page: 9 Letter: B. Number: 7 (to the nearest tenth)  I. FEMA Floodplain Map Panel Number (If Known)  J. 1 36-36-30 (and the process of the following as appropriate for the type of wetland/waterway where your proposing an activity:  A. CTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where your proposing an activity:  A. Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Waters  — Tidal Z. Nontidal  — Tidal Z. Non	d. PROJECT PURPOSE: Give brief The purpose of the subject project		ject purpose: ordance with the Comprehensive Environmental Response
a. LOGATION INFORMATION  A. County: Caell B. City: Bainbridge C. Name of waterway or closet waterway: Happy Valley Brand D. State stream use class designation: E. Sine Address or Location: Former Naval Training Center/ Current Chespbeake Job Corps Center F. Directions from nearest intersection of two state roads: Take Route 222 toward Port Deposit at the intersection Interstate 35 and Route 222. Go approximately 2 miles and look for the main date on the Jight. Proceed through the maintain to the northern portion of Gilmore Road.  G. Is your project located in the Chesapeake Bay Critical Area (generally within 1000 feet of tidal waters or tid wetlands)?:  — Yes X. No H. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties: Page: 9 Letter: B. Number: 7 (to the nearest tenth) I. FEIMA Floodplain Map Panel Number (If Known) J. 1 36-36-30 latitude 2 76-04-00 longitude b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where your proposing an activity:  A. Tidal Waters — FX. 100-foot buffer (nontidal) H. 100-year floodplain vegetated shallows)  A. Tidal Waters — FX. 100-foot buffer (nontidal) H. 100-year floodplain (using stream channel) (using stream channel) (using stream channel) (using stream channel) (using stream channel) (using stream channel)  — Special Aquatic Site — G. Instream channel Invertible point (Explain)  D. X. Nontidal Wetland  EX. 25-foot buffer(nontidal wetlands)  B. Present Zoning Is: 1 Residential 2 Commercial/industrial 3 Agriculture 4 Marrins 5 X Other  C. Project complies with current zoning X Yes — No  THE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):  Nortical Area do not complete these blocks  B. Reduced the area of B. Reduced size/scope of C. Relocated structures project  D. Redesigned project  D. Redesigned project			
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D. State stream use class designation:  Site Address or Location: Former Naval Training Center/ Current Chesposeake Job Corps Center  F. Directions from nearest intersection of two state roads: Take Route 222 toward Port Deposit at the Intersection. Interstate 95 and Route 222. Go approximately 2 miles and took for the main sate on the John. Proceed through it mainsate to the northern portion of Gilmore Road.  G. Is your project located in the Chesposeke Bay Critical Area (generally within 1000 feet of tidal waters or tid wetlands)?:  — YesX No  M. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties:  Page: 9 Letter: 8 Number: 7 (to the nearest tenth)  I. FEMA Floodplain Map Panel Number (If Known)  J. 1 36-36-30 latitude 2 76-04-00 longitude  b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where years proposing an activity:  ATidal Waters	a. LOCATION INFORMATION		
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Interstate 95 and Route 227. Go approximately 2 miles and look for the main pate on the right. Proceed through it mainings to the northern portion of Gilmore Road.  G. Is your project located in the Chesapaake Bay Critical Area (generally within 1000 feet of tidal waters or tid wetlands)?:  Yes X. No  H. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties:  Page: 9 Letter: B. Number: 7 (to the nearest tenth)  I. FEMA Floodplain Map Panel Number (If Known)  J. 136-36-30 latitude 2 75-04-00 longitude  b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where your are proposing an activity:  A. Tidal Waters  F.X. 100-foot buffer (nontidal) H_100-year floodplain  wetland of special State concern) (outside stream channel)  F.X. 20-foot buffer (nontidal) J_Other (Explain)  Vegetated shellows)  D.X. Nontidal Wetlands  E.X. 25-foot buffer(nontidal wetland wetlands only)  C. LAND USE:  A. Current Use of Parcel is: 1_Agriculture: Has SCS designated project site as a prior converted cropland?  Yes _No 2_Wooded 3_Marsh/Swamp 4_X_Developed  5_X Other (explain) Department of Navy land.  B. Present Zoning is: 1_Residential 2_Commercial/Industrial 3_Agriculture 4_Marins 5_X_Other  C. Project complies with current zoning X_Yes _No  THE FOLLOWING INFORMATION IS REQUIRED By THE STATE (blocks 4-7):  Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake BaCritical Area do not complete these blocks.  REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also chectems A-E if any of these apply to your project.  A. Reduced the area of disturbance project  D. Redesigned project			rent Chesapeake Job Corps Center
wetlands)?:  Yes X No  H. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties:  Page: 9 Letter: B Number: 7 (to the nearest tenth)  I. FEMA Floodplain Map Panel Number (If Known)  J. 136-36-30 latitude 2 76-04-00 longitude  b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where yeare proposing an activity:  A Tidal Waters FX 100-foot buffer (nontidal) H_100-year floodplain (outside stream channel)  Special Aquatic Site G In stream channel I_River, lake, pond (e.g., mudflat), vegetated shallows)  DX Nontidal Wetland  EX 25-foot buffer(nontidal) wetlands only!  c. LAND USE:  A. Current Use of Parcel Is: 1_Agriculture: Has SCS designated project site as a prior converted cropland? Yes No 2_Wooded 3_Marsh/Swamp 4_X_Developed  5_X Other (explain) Department of Navy land.  B. Present Zoning Is: 1_Residential 2_Commercial/Industrial 3_Agriculture 4_Marina 5_X_Other  C. Project complies with current zoning X_Yes _No  THE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):  Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake Ba Critical Area do not complete these blocks.  4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also checters A-E if any of these apply to your project.  A. Reduced the area of BReduced size/scope of CRelocated structures disturbance project  C. Other	Interstate 95 and Route 222. G	o approximately 2 miles and id	
H. County Book Map Coordinates (Alexandria Drafting Co.); Excluding Garrett and Somerset Counties:  Page: 9 Letter: B Number: 7 (to the nearest tenth)  I. FEMA Floodplain Map Panel Number (If Known)  J. 1 36-36-30 latitude 2 76-04-00 longitude  b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where your proposing an activity:  A Tidal Waters FX 100-foot buffer (nontidal) H_100-year floodplain wetland of special State concern) (outside stream channel)  Special Aquatic Site G_ In stream channel I_River, lake, pond (e.g., mudflat), vegetated shallows)  EX Nontidal Wetland  EX 25-foot buffer(nontidal wetlands only)  C. LAND USE:  A. Current Use of Parcel Is: 1_Agriculture: Has SCS designated project site as a prior converted cropland?  Yes No 2_Wooded 3_Marsh/Swamp 4_X_Developed  5_X_Other (explain) Department of Navy land.  B. Present Zoning Is: 1_Residential 2_Commercial/Industrial 3_Agriculture 4_Marina 5_X_Other  C. Project complies with current zoning X_Yes No  THE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):  Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake Ba Critical Area do not complete these blocks.  4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also chectems A-E if any of these apply to your project.  A_Reduced the area of B_Reduced size/scope of C_Relocated structures disturbance project  EOther	wetlands)?:	ne Chesapeake Bay Critical Ar	ea (generally within 1000 feet of tidal waters or tida
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b. ACTIVITY LOCATION: Check one or more of the following as appropriate for the type of wetland/waterway where your proposing an activity:  A Tidal Waters			ie nearest tenth)
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Tidal Wetlands	b. ACTIVITY LOCATION: Check are proposing an activity:	cone or more of the following as	appropriate for the type of wetland/waterway where yo
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YesNo 2_Wooded 3_Marsh/Swamp 4_X_Developed 5_X_Other (explain) Department of Navy land.  B. Present Zoning Is: 1Residential 2Commercial/Industrial 3Agriculture 4Marina 5_X_Other  C. Project complies with current zoning X_YesNo  THE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):  Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake Ba Critical Area do not complete these blocks.  4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also checatems A-E if any of these apply to your project.  AReduced the area ofB_Reduced size/scope ofC_Relocated structures	c. LAND USE:		
C. Project complies with current zoning X YesNo  FHE FOLLOWING INFORMATION IS REQUIRED BY THE STATE (blocks 4-7):  Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake Ba Critical Area do not complete these blocks.  4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also checitems A-E if any of these apply to your project.  A. Reduced the area of B. Reduced size/scope of C. Relocated structures disturbance project D. Redesigned project	YesNo 2Wooded	3_Marsh/Swamp 4_X_Develop	
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Note: If you are proposing activities in nontidal wetlands, their buffers, or expanded buffers in the Chesapeake Ba Critical Area do not complete these blocks.  4. REDUCTION OF IMPACTS: Explain measures taken or considered to avoid or minimize wetlands losses in F. Also checitems A-E if any of these apply to your project.  A. Reduced the area of B. Reduced size/scope of C. Relocated structures disturbance project D. Redesigned project	C. Project complies with current	zoning X Yes No	
terns A-E if any of these apply to your project.  AReduced the area of BReduced size/scope of CRelocated structures	Note: If you are proposing ac	tivities in nontidal wetlands, th	
disturbance project DRedesigned project Other			red to avoid or minimize wetlands losses in F. Also check
	AReduced the area of disturbance		<del></del>
	EOther		

ere not avoided or reduced in C	. Also check items G-P that apply to your project.
KParcel size LOther regulatory requirement MFailure to accomplish project purpose	NSafety/public welfare issue OInadequate zoning POther
	exemption for activities in nontidal wetlands and/or their
pact: CMitigation feet DUtility Lir retland 1_ov 2_un	
APPLYING FOR A LETTER OF EXIST Explain why other sites that	XEMPTION, PROCEED TO BLOCK 11  were considered for this project were rejected in N. also applying for a letter of exemption, do not complete this
B,2-4 sites	C5 or more sites
t considered for the following r	eason(s):
<ol> <li>Water dependence</li> <li>JInadequate zoning</li> </ol>	
ng for a letter of exemption, do	
CHealth/welfare  DDoes not provide  benefits	EOther
<u></u>	
	KParcel size LOther regulatory

8.	OTHER APPROVALS	NEEDED/GRANTED:			
A.	Agency	B. Date	C. Decision	D. Decision	E. Other
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9.		se provide the following	information:	<del></del>	
	•				ents only). Attach another sheet
	*				
b.		<del></del>			
_					
	reejected.	<del></del>	<del></del>		as were considered and why they
<b></b> ء.	Describe how the mit	igation site will be pro	tected in the future.		
	·				
10.		OPERTY OWNERS BEI			
Pro	vide names and mailin	g addresses below (Us	e separate sheet if n	ecessary):	
ì.		b		c	
			<del></del> _		

		properties? (For example: structures over 50 vide any supplemental information in section
AYes BX_No CUnkn	own	•
ADDITIONAL INFORMATION: U if necessary:	se this space for detailed responses to any	y of the previous items. Attach another sheet
Check box if data is enclosed for an	y one or more of the following (See chec	:klist for required information):
A Soil borings B Wetland data sheets C Photographs	DField surveys EAlternative site analysis FMarket analysis	G_X_Site Plan HAvoidance and minimization analysis
IOther (explain)		
CERTIFICATION:		
furnish any information that is requisive specifications is true and accurate to in authorizing the proposed works main considering this proposal. I certify that all jursidictional wetlands have be <u>Jursidictional Wetlands</u> . I grant permit appresentative, to enter the project similar or license if issued and will neworks are consistent with Maryland's in the application form is confidential under applicable laws. I further under being deemed incomplete.	uested. I certify that the information of the best of my knowledge and belief. It is an addition to that significant in addition to that significant in accordance with the February to the agencies responsible for authorite for inspection purposes during working of begin work without the appropriate authorite for a Coastal Zone Management Plan. I under and that I may request that additional reconstant that failure of the landowner to significant in the properties of the landowner to significa	f in the processing of this application and to nothis form and on the attached plans and understand that any of the agencies involved set forth herein as may be deemed appropriate to been identified and delineated on site, and ederal Manual for Identifying and Delineating prization of this work, or their duly authorized g hours. I will abide by the conditions of the orthorization. I also certify that the proposed stand that none of the information contained quired information be considered confidential in the application will result in the application
LANDOWNER MUST SIGN:	Hauther La	Date: 6-6-99
	0	

July 19, 1994

Mr. Robert J. Stolz OHM Remediation Services Corp. P.O. Box 224 Port Deposit, MD 21904-0224

Mr. Robert Cooper Maryland Department of Natural Resources Tawes State Office Building Annapolis, MD 21401-9974

#### TRANSMITTED VIA FACSIMILE

RE: Proposed Wetland Activities: Areas 1 and 2
Naval Training Center - Bainbridge, Maryland
LANTDIV Delivery Order No. 0014
OHM Project 16006

Dear Mr. Cooper:

In response to your conversation with Mr. Frank Zepka of CHESDIV, OHM Remediation Services Corp. (OHM) has developed an operational approach for activities to be performed in wetlands located in Areas 1 and 2 at the Naval Training Center (NTC) - Bainbridge. OHM is currently excavating test pits in Area 1 to confirm the limits of the existing landfill. To evaluate the magnitude and extent of soil contamination in Area 2, the fire training area, OHM will need to dewater and clear vegetation in the oil separator pit area. The following sections describe in greater detail the sequence of tasks to be performed in the wetlands located in each area.

#### AREA 1: LANDFILL LIMITS VERIFICATION

On July 14, 1994, OHM began excavating test pits in non-wetland areas adjacent to the existing landfill (Area 1) to verify the extent of landfill material. Additional test pits may be required in wetland areas north of the proposed landfill limits. The limits of wetlands shown on Figure 1 are approximate and have since been revised in the field to include a smaller area. OHM will make every attempt to avoid disturbance of the wetlands; however, it may be necessary in some instances to clear vegetation and advance test pits in wetland areas. OHM is proposing to use a small, low ground pressure excavator to minimize impact to wetlands. The width of wetland clearing will measure approximately eight feet. The excavator will track over and operate from wood mats to distribute equipment loads and reduce the impact to the wetlands.

OllM anticipates that the excavation will measure approximately four feet by three feet in area, and will not exceed eight feet in depth. Vegetation will be removed only to the extent required for access, excavation, and staging of test pit spoils. Once excavation of a test pit is discontinued, the excavated soil will be returned to the test pit. The bucket of the excavator will be used the tamp and compact the soils in lifts. Mulch will be applied to all cleared ground surfaces. Silt fences will be installed as necessary

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at the limits of clearing until the disturbed areas are revegetated. All cleared vegetation will be removed from the wetlands for disposal with non-wetland vegetation.

#### AREA 2: OIL SEPARATOR PIT INVESTIGATION

To allow access to the oil separator pit area by OHM sample technicians, OHM will need to remove dense non-wetland vegetative growth present both on the berms surrounding the pit and between the concrete fire training pad and the oil separator pit. In addition, OHM will "knock down" invasive tall grass now present in the pit. The approximate limits of clearing are shown in Figure 2. The non-wetland vegetation will be cleared using mechanical clearing equipment and power hand tools. The invasive grass will be flattened by reaching from the berm and the interior access road with the excavator boom.

Once the clearing has been accomplished. OHM will establish a sample grid as shown in the accompanying figure. Sediment samples will be collected by advancing a lexan tube into the soft bottom sediment within the pit. Hand and/or power augers will be used outside the pit to collect sediment samples. The samples will be placed in jars and shipped under chain-of-custody to the testing laboratory. OHM will not attempt to remove standing pit water during the sampling event as long as the water depth remains below approximately 18 inches in depth.

In the event that standing water must be removed during the sampling event, OHM will assemble 12,000 (12K) and 50,000 (50K) temporary storage pools on the former fire training pad. Standing water will be pumped from sumps installed at low elevations in the pit. The sumps will be constructed using slotted polyethylene drums and crushed stone. The 12K pool will serve as a treatment pool, to the extent necessary, and the 50K pool will be used for temporary bulk storage of the pit water until discharge can be arranged.

Please call me at 410-378-2193 (OHM site telephone) if you have any questions or comments regarding the proposed wetland activities.

Sincerely.

Robert J. Stolz Project Engineer

DC:

F. Zepka, CHESDIV

T. Dean, USACE

L. Stearns P.E., OIIM

D. Strickland, OHM

#### FAX COVER SHEET

PAGE 1 OF 9

To: OHM Remediation Services Corp, Attn: Mr Bob Stolz

From: Frank Zepka, EFA-Chesapeake, NAVFAC, Code 1812, 202-685-3279

(FAX 202-433-6193)

Subj: Bainbridge-Water Approp Permits and Wetland Issues

July 26, 1994

Bob:

Bob Cooper of DNR had asked for more info during his last visit, RE: our actions in the stream and seeps. I'm providing you a copy of my draft so that we keep our thoughts consistent.

I am also faxing cys of the Water Appropriation Approvals from DNR--These, together with the previous Wetland approvals CLEAR US to dig/work in the wetlands and seeps, including pumping water from the same. Water discharge to the environment has NOT been approved.

Please look over the terms of the permits carefully. Permit for actions at the OSP is good until 1 October 94--we may need to extend later.

Frank Zepha

09:12

DRAFT 7-25

5090 1812/FZ

Maryland Dept of Natural Resources Water Resources Administration, Attn: Mr. Robert Cooper Tawes State Office Building Annapolis, MD 21401

Dear Mr. Cooper:

On July 21, 1994, you and Mr. Terry Dean of the Corps of Engineers conducted the second joint wetlands site visit to the former Navai Training Center Bainbridge (NTC-B) regarding Application Tracking Numbers 199467226/94-NT-0582, and 199467229/94-NT-0583. At that time, a fequest was made that the Navy provide additional information relative to actions in the streams and seeps at the Old Landfill.

In general, the NTC and its landfill were in operation from World War II until 1976. At the time the base closed, a final soil cover was placed on the landfill, but it did not receive an impermeable cap as would be required in today's regulatory environment. Currently, the Navy is in the process of implementing two Removal Actions (i.e., interim remedial actions) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); these removal actions will install a cap at the landfill, and remove contaminated soils from the Fire Training Area.

At present, rain falling onto the landfill is free to percolate through the landfilled materials, picking up contaminants as it travels. This water may also join with upper level ground water before it finds its way out of the landfill; migrating water returning to the surface near the landfill is termed a leachate seep. Several such seeps exist around the perimeter of the landfill.

As part of the landfill cap construction, it is the Navy's intention to capture the water emanating from the two most prominent seeps (termed Seeps A and B), and to transport the collected leachate to a Publicly Owned Treatment Works (POTW) for treatment and disposal. To expedite your review in this area, the Navy's construction agent, OHM Remediation Services Corp., has directly provided DNR and the Corps with engineering sketches and text which illustrate the proposed approach. Sometime after the cap is in place, it is expected that water flow through the landfill will be reduced or stopped, and the collection of leachate from the seeps may end at that time. In the event that the presently proposed collection methodology proves incompatible with the permanent cap, an additional leachate collection system will be engineered into the cap design.

In spite of extensive efforts to delineate the limits of the landfill, an additional area of fill was identified on or about July 19; this area is off the western edge of the landfill and extends beyond the unnamed stream along Maryland Route 276. Early indications are

that there is large

that there is largely construction type rubble, rather that industrial or residential type organic wastes. We proposed to delineate to limits of fill by digging a series of test pits. Since this area is in the immediate proximity of the unnamed stream, we are seeking your permission to investigate within the wetlands. Ultimately, the buried wastes will be subject to remediation; most probably, the contaminated soils will be removed, and the stream reestablished in clean soils. As the design for this aspect of remediation progresses, we will be working with the DNR and the Corps of Engineers to achieve a reasonable resolution in a relatively short time frame.

If you have any questions or comments on this matter, please feel free to contact Mr. Frank Zepka at 202-685-3279.

DRAFT

1812\L25July.doc



### MARYLAND DEPARTMENT OF THE ENVIRONMENT 2500 Broening Highway • Baltimore, Maryland 21224

(410) 631-3000

09:40

William Donald Schaefer

David A.C. Carroll Secretary

September 13, 1994

Frank R. Peters, Manager
Environmental Restoration Branch
Department of the Navy
Engineering Field Activity Chesapeake
Washington Navy Yard Building 212
901 M Street S.E.
Washington D.C. 20374-50018

Dear Mr. Peters:

This is in response to your letter about discharging water from the oil separator pit at Bainbridge. You indicate 500,000 to one million gallons of water need to be removed from the pit. We agree that after filtration and carbon absorption the water can be used for dust control on Navy property without a discharge permit. However, use of effluent for dust control shall not cause surface runoff and ponding. Dust control shall not take place during periods of precipitation, high winds (wind speed > 10 mph), freezing conditions or saturated soil.

You may also wish to investigate hauling the water to a municipal treatment facility if approval can be secured from the owner. A discharge into ground or surface water involves the movement of your effluent off the site and will require a discharge permit. If you must proceed with a discharge, please let me know and we will start the public participation process by offering an opportunity for a public meeting on the application. If the permit is not contested, it can be issued in about 180 days.

Your effort to complete the restoration of the site is acknowledged and, if necessary, we will expedite the processing of your permit application. If you have any questions, please call me at (410) 631-3752.

Sincerely.

Jeffrey'L. Rein

Environmental Program Manager

Wastewater Discharge Permit Program

JLR/ba

#### STATE OF MARYLAND

### DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION

#### NONTIDAL WETLANDS AND WATERWAYS PERMIT

PERMIT NUMBER: 94-NT-0583/199467229

EFFECTIVE DATE: September 21, 1994

EXPIRATION DATE: September 21, 1997

PERMITTEE: Department of The Navy

Engineering Field Activity - Chesapeake Naval Facilities Engineering Command

Atm: Joe Hautzenroder 901 M Street S.E., Building 212 Washington Navy Yard Washington, D.C. 20374-5018



IN ACCORDANCE WITH NATURAL RESOURCES ARTICLE 18-803(a) AND 18-1206(b), ANNOTATED CODE OF MARYLAND (1996 REPLACEMENT VOLUME), COMAR 08.05.03.03.4 AND 08.05.04.02A, AND THE ATTACHED GENERAL AND SPECIFIC CONDITIONS, Department of The Navy, Engineering Field Activity - Chesapeake, Naval Facilities Engineering Command ("PERMITTEE"), IS HEREBY AUTHORIZED BY THE WATER RESOURCES ADMINISTRATION ("ADMINISTRATION") TO CONDUCT A REGULATED ACTIVITY IN A NONTIDAL WETLAND, BUFFER, OR EXPANDED BUFFER, AND/OR TO CHANGE THE COURSE, CURRENT OR CROSS-SECTION OF WATERS OF THE STATE, IN ACCORDANCE WITH THE ATTACHED PLANS APPROVED BY THE WATER RESOURCES ADMINISTRATION, NONTIDAL WETLANDS AND WATERWAYS DIVISION SEDIEMBER 21, 1994, ("APPROVED PLANS") AND PREPARED BY OHM Remediation Services Corporation and incorporated Herein, as Described below:

Environmental remediation work at the abandoned Bainbridge Navai Training Center facility. The work includes excavation of landfill materials from a stream and wetland system, capping of an existing landfill, removal of hydrocarbon contaminated soils from an earth berned oil/water separator pit, and removal of pesticide contaminated soil from a forested wetland. The authorized activities will result in permanent loss of 16.450 square feet of forested nontidal wetlands, temporary impact to 38.400 square feet of emergent nontidal wetlands, temporary impact to 38.500 square feet of forested nontidal wetlands, and impacts to 32.450 square feet of nontidal wetlands buffer. The project is located north of U. S. Route 222 and east of Maryland Route 276, near Port Deposit, Cecil County. The wetlands to be impacted are associated with tributaries to the Susquehanna River.

MD Grid Coordinates: 648,000 ± N - 1,052,000 ± E

Contidal Wetlands & Waldrways Division

Attachments: Permit Conditions

CC: U.S. Army Corps of Engineers (Terry Desa)

Maryland Department of the Environment

WRA Enforcement Division w/ file

Mitigation & Tech. Assistance Section (Denise Clearwater)

Telephone: 410-974-3841

DNR TTY for the Deat: 410-974-3683

## PERMIT CONDITIONS PAGE 2 of 4

#### PERMIT NO. 94-NT-0583/199467229

#### GENERAL CONDITIONS

- Validity: Permit is valid only for use by Permittee. Permit may be transferred only with prior
  written approval of the Administration. In the event of transfer, transferre agrees to comply with
  all terms and conditions of Permit.
- 2. Modifications and Extension of Term: Permittee may submit written requests to the Administration for modification of Permit, including the Approved Plan or, not later than 45 days prior to Expiration Date, an extension of the term. Requests for modifications shall be in accordance with applicable regulations and shall state reasons for changes, and shall indicate the impacts on nontidal wetlands, streams, and the floodplain, as applicable. The Administration may extend the Expiration Date at its sole discretion.
- 3. Responsibility and Compliance: Permittee is fully responsible for all work performed, and activities authorized by Permit shall be performed in compliance with Permit and Approved Plan. Permittee agrees that a copy of the Permit and Approved Plan shall be kept at the construction site and provided to its employees, agents and contractors. A person (including Permittee, its employees, agents or contractors) who violates or fails to comply with the terms and conditions of Permit, Approved Plan or an administrative order may be subject to penalties in accordance with \$8-814 and \$8-1210, Natural Resources Article, Annotated Code of Maryland (1990 Replacement Volume).
- 4. Failure to Comply: If Fermittee, its employees, agents or contractors fail to comply with Permit or Approved Plan, the Administration may, in its discretion, issue an administrative order requiring Permittee, its employees, agents and contractors to cease and desist any activities which violate Permit, or the Administration may take any other enforcement action available to it by law, including filing civil or criminal charges.
- 5. Suspension or Revocation: Permit may be suspended or revoked by the Administration, after notice of opportunity for a hearing, if Permittee: (a) submits false or inaccurate information in Permit application or subsequently required submittals; (b) deviates from the Approved Plan, specifications, terms and conditions; (c) violates, or is about to violate terms and conditions of Permit; (d) violates, or is about to violate, any regulation promulgated pursuant to Title 8, Natural Resources Article, Annotated Code of Maryland as amended; (e) fails to post a bond if required pursuant to COMAR 08.05.04.01.16B; (f) fails to allow authorized representatives of the Administration to enter the site of authorized activities at any reasonable time to conduct inspections and evaluations; (g) fails to comply with the requirements of an administrative action or order issued by the Administration; or (h) does not have vested rights under Permit and new information, changes in site conditions, or amended regulatory requirements necessitate revocation or suspension.
- 6. Other Approvals: Permit does not authorize any injury to private property, any invasion of rights, or any infringement of federal, State or local laws or regulations, nor does it obviate the need to obtain required authorization or approvals from other State, federal or local agencies as required by law.
- 7. Site Access: Permittee shall allow authorized representatives of the Administration access to the site of authorized activities during normal business hours to conduct inspections and evaluations necessary to assure compliance with Permit. Permittee shall provide necessary assistance to effectively and safely conduct such inspections and evaluations.
- 8. <u>Inspection Notification</u>: Permittee shall notify the Administration's Enforcement Division at least five (5) days before starting activities authorized by Permit and five (5) days after completion. For Fraderick, Washington, Allegany and Garrett counties, Permittee shall call the Frontiburg office at (301) 689-8494. For all other counties, call the Annapolis office at (410) 974-2641.
- Sediment Control: Permittee shall obtain approval from the Maryland Department of The
  Environment for a grading and sediment control plan specifying soil erosion control measures. The
  approved grading and sediment control plan shall be included in the Approved Plan, and shall be
  available at the construction site.

#### PERMIT CONDITIONS PAGE 3 of 4

#### PERMIT NO. 94-NT-0583/199467229

10. Federally Mandated State Authorizations:

- X Water Quality Certification: Water Quality Certification shall be obtained from the Maryland Department of The Environment, if required pursuant to a U.S. Army Corps of Engineers Permit, prior to conducting any activities in wetlands or waterways. All authorized activities shall be performed in accordance with the Maryland Department of the Environment Water Quality Certification.
- X Coastal Zone Consistency: This Permit constitutes official notification that authorized activities are consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended. Activities within the following counties are not subject to this requirement: Allegany, Carroll, Frederick, Garrett, Howard, Montgomery, and Washington.
- 11. Best Management Practices During Construction: Permittee, its employees, agents and contractors shall conduct authorized activities in a manner consistent with the Best Management Practices specified on the Approved Plan.
- 12. <u>Disposal of Frons</u>: Unless otherwise shown on the Approved Plan, all excess fill, spoil material, debris, and construction material shall be disposed of outside of nontidal wetlands, nontidal wetlands buffers, and the 100-year floodplain, and in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands.
- 13. Temporary Staging Areas: Temporary construction trailers or structures, staging areas and stockpiles shall not be located within nontidal wetlands, nontidal wetlands buffers, or the 100-year floodplain unless specifically included on the Approved Plan.
- 14. Temporary Stream Access Crossings: Temporary stream access crossings shall not be constructed or utilized unless shown on the Approved Plan. If temporary stream access crossings are determined necessary prior to initiation of work or at any time during construction, Permittee, its employees, agents or contractors thall submit a written request to the Administration and secure the necessary permits or approvals for such crossings before installation of the crossings. Temporary stream access crossings shall be removed and the disturbance stabilized prior to completion of authorized activities or with one (1) year of installation.
- 15. <u>Discharge:</u> Rumoff or accumulated water containing sediment or other suspended materials shall not be discharged into waters of the State unless treated by an approved sediment control device or structure.
- 16. Instream Construction Prohibition: To protect important aquatic species, activities within stream channels are prohibited as determined by the classification of the stream (COMAR 26.08.02.08): Susquehanns River and tributaries are Use I Waterways: In-stream work may not be conducted from March 1 through June 15, inclusive, of any year.
- 17. <u>Disturbance of Stream Channels:</u> Motor driven construction equipment shall not be allowed within the stream channel unless shown on Approved Plan or specifically authorized in writing by the Administration.
- 18. <u>Instream Blasting</u>: Permittee shall obtain prior written approval from the Administration before blasting or using explosives in the stream channel.
- 19. Minimum Disturbance: Any disturbance of stream banks, channel bottom, wetlands, and wetlands buffer authorized by Fermit or Approved Plau shall be the minimum necessary to conduct permitted activities. All disturbed areas shall be stabilized vegetatively no later than seven (7) days after construction is completed or in accordance with the approved grading and sediment control plan.
- 20. Restoration of Construction Site: Permittee shall restore the construction site upon completion of authorized activities. Undercutting, meandering or degradation of the stream banks of channel bottom, any deposition of sediment or other materials, and any alteration of wetland regeration, soils, or hydrology, resulting directly or indirectly from construction or authorized activities, shall be corrected by Permittee as directed by the Administration.

## PERMIT CONDITIONS PAGE 4 of 4

#### PERMIT NO. 94-NT-0583/199467229

Mitigation Requirement: Permittee shall mitigate for 16.450 square feet of nontidal wetland loss and for 76.500 square feet of temporary nontidal wetland impact by creating a minimum of 32.500 square feet of temporarily impacted emergent nontidal wetlands and restoring a minimum of 38.500 square feet of temporarily impacted emergent nontidal wetlands and restoring a minimum of 38.500 square feet of temporarily impacted forested wetlands. The mitigation shall be done in accordance with an approved Phase I conceptual mitigation plan, as may be modified by a Phase II Mitigation Plan approved by the Administration pursuant to COMAR .08.05.04.17C, within a time frame specified by the Administration. The Phase II Mitigation Plan shall be submitted to the Administration by December 21, 1994 talest an extension has been granted in writing by the Administration. The Phase II Mitigation Plan shall govern in the event of a discrepancy with the mitigation requirements in this Permit.

STORMWATER MANAGEMENT AND SEDIMENT & EROSION CONTROL APPROVAL STATE/FEDERAL PROJECTS

APPROVED BY: / and // Chief, Plan Review Division (Pursuant to Criteria Noted Below

MDE NUMBER: 94-SF-0374

EFFECTIVE DATE: November 9, 1994

IN COMPLIANCE WITH: Environment Article, Sections 4-106 and 4-205

Annotated Code of Maryland

APPROVAL IS HEREBY GRANTED: Department of the Navy

ADDRESS: E.F.A. Chesapeake \_ 901 M. Street, S.E.

Washington Navy Yard, Bldg. 212

Washington, DC 20374-5018

Attn: Mr. John McFarlane

HEREINAFTER KNOWN AS OWNER,

FOR THE PLANS AND SPECIFICATIONS PRESENTED FOR: Contract No. N62470-93-D-3032

Remediation at NTC, Bainbridge

PREPARED BY: OHM Remediation Services

This APPROVAL is granted subject to the following conditions:

- 1. This Approval shall become null and void if the construction authorized herein has not begun within two (2) years from the granting of this Approval. If the construction authorized herein has not been completed within five (5) years from the granting of this Approval, the Approval shall become null and void except that these limits may be extended at the discretion of the Department.
- 2. The Approval is subject to all laws and regulations now in effect and may be revoked if it is subsequently determined that this authorization violates other laws of the State. Construction shall comply with approved terms.
- 3. The location and dimensions of all Sediment Control structures, excavation and filling shall be in accordance with plans approved by the Department of the Environment Water Management Administration (MDE/WMA). Owner or authorized agent must obtain written approval from the MDE/WMA for any plan modifications or changes. A copy of the approved plan with any approved modifications and this Approval shall be available at the construction site for reference during the construction period.
- 4. Off-site borrow or waste sites require local county and Soil Conservation District approvals if they are located on private property or MDE/WMA approval if on State or Federal property. Local approval numbers shall be furnished to the MDE/WMA Inspector.
- 5. The Owner or his authorized agent shall notify the MDE/WMA Compliance Program at (410) 631-3510, at least seven (7) days prior to initiation of the project and five (5) days after work ends.

cc: Larry Stearns Mike Murtha



William Duruld Schaefer

## Maryland Department of Natural Resources Water Resources Administration

Tawes State Office Building Annapolis, Maryland 21401

Torrey C. Brown, M.D. Secretary

Robert D. Miller, Esquire

"A Commitment to Excellence in Managing Maryland's Water Resources"

	TO: LARRY STEARUS OHM	FROM:	MARK BURCHICK	DATE: 12/1/ PAGES INCLUDIN	1948
H	MIKE MURTHA-BAINBRE	9E.	EAR, INC.	THIS PAGE:	_ re
13	FAX #:  - 412- 965- 2327   FAX #:		PHONE #: 301-439 - 2400		5 §

November 30, 1994

Department of the Navy Engineering Field Activity - Chesapeake Naval Facilities Engineering Command Attn: Joe Hautzenroder 901 M St. S.E., Building 212 Washington Navy Yard Washington, D.C. 20374-5018

> Application Tracking #199467229 Nontidal Wetlands #94-NT-0583 M Bainbridge Naval Training Center Cecil County

#### Dear Mr. Hautzenroder:

The Administration has determined that the addition of conditions #22 and #23 to the above permit qualifies as a minor modification pursuant to COMAR .08.05.04.11 D(2). Thus, no public hearing will be required prior to issuance of the modification.

The following modifications are hereby considered a part of Nontidal Wetlands Permit #199467229/#94-NT-0583 issued on September 21, 1994:

- 22. Permittee shall monitor groundwater levels in wetland areas authorized to have temporary impacts on a bimonthly schedule, March through May, and monthly, June through October, during 1995 and 1996 and submit results to the Administration by November 30 of each year. Vegetation shall be sampled during March through October in 1996.
- 23. Failure to achieve sufficient hydrology, soils, and a predominance of hydrophytic vegetation sufficient to establish a nontidal wetland to the satisfaction of the Administration

Telephone:	(410) 974-384)					
DNR TTY	for the Deaf: 301-974-3621					

through 1996 shall result in temporary impacts being considered a permanent loss and the permittee shall be required to mitigate according to COMAR .08.05.04 and Phase II Mitigation Plan requirements as described in condition #21 above.

Please be advised that issuance of this permit modification does not relieve you of the requirement to obtain any other necessary permits or approvals from the U.S. Army Corps of Engineers, Maryland Department of the Environment, or the local permitting authority.

Sincerely,

Denise Clawater

William A. Jenkins, Jr., Chief Nontidal Wetlands and Waterways Division

cc: Bob Cooper
Terry Dean, USACOE
Maryland Department of the Environment
WRA Enforcement Division
Mark Burchik

Subject SAUPLE MONITORING Prepared By EQP Date 11/14/94 WELL Date\_ Checked By \_ FILTEL . NO SCALE

F-1118

7/05/94

# FIVE YEAR WETLAND MITIGATION MONITORING USING THE COMPREHENSIVE POINT INTERCEPT SAMPLING PROCEDURE

(A method to determine if mitigation creation is performing overtime) Extracted and modified from Point Intercept Sampling Procedure beginning on page 41 of January 1989, Federal Manual for Identifying and Delineating Jurisdictional Wetlands.

Establish baseline parallel to water course or slope and create transects perpendicular to the baseline. Distance between transects is dependent upon the wetland in question but an approximation for a rectangular acre (football field sized) would be every 10 yards apart thus establishing 10 reading lines.

Install permanent markers on cardinal compass points in order to find the fixed stations if performing long-term monitoring. Photo document your reading lines.

Record vegetation at 2-foot intervals along transect. Calculate prevalence index (PI) for each transect and mean PI for all transects combined.

Record final PI and make wetland mitigation success determination.

- < 3.0 = WETLAND</p>
- > 3.0 and < 3.5, no significant hydrologic change = WETLAND</li>
- >3.5 = usually NONWETLAND

The project can be considered successful if after the fifth growing season, a comprehensive point intercept sampling procedure reveals that a prevalence ecological index (PI) of 3.0 or less is expressed within the mitigation site. PI of <= 3.0 is a plant community consisting of 50% or greater, native, indigenous and endemic hydrophytic vegetation. A qualifying index will also confirm viable wetland hydrology. The successional tree stratum should be progressing toward sapling stocking in the 1 through 5-inch diameter class, ultimately providing thermal closure, soil stabilization and corridor enhancement.

### **VEGETATION**

#### PREVALENCE INDEX WORKSHEET

LUCATION		DATE		EVALUATOR		
HYDRIC UNIT NAME	TRANSECT NO					
			Frequency of Occurrence of Identified Plants with Known Indicator Status			
	Frequency of occurrence	F.	F <sub>N</sub>	Ft	F <sub>N</sub>	Fu
Plant Species	Total for Each Species	Obligate	Facult. <u>Wet.</u>	Facult.	Facult. Upland	Upland
						*
Total occurrence for all plant species						
Total occurrences ID'd with known indicator status						
Ecological Index			_			
value		1	2	<u>3</u>	4	5

 $\frac{P1_1 = (1F_0 + (2F_W) + (3F_f) + (4F_{fW}) + (5F_w)}{(F_0 + F_W + F_f + F_W + F_w)}$ 

# APPENDIX H PROJECT PHOTOGRAPHS

## CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Preconstruction Conditions
- Mobilization
- Site Setup
- Test Pits

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 1-01 Date: 15 April 1994

Title: Pre-Construction: Entrance to NTCB



No.: 1-02 Date: 15 April 1994

Title: Pre-Construction: Eastern side facing west



No.: 1-03 Date: 15 April 1994

Title: Pre-Construction: Eastern side facing north



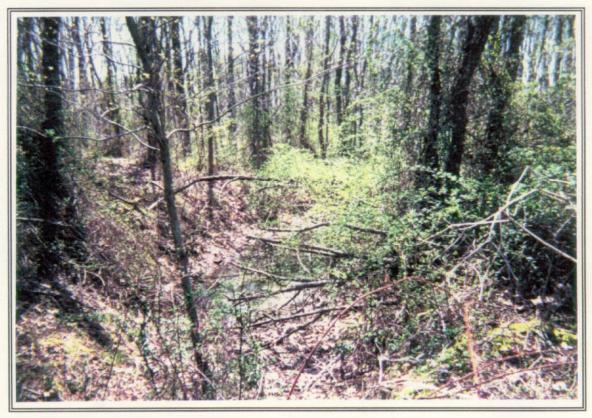
No.: 1-04 Date: 15 April 1994

Title: Pre-Construction: Center of Site 1 facing west



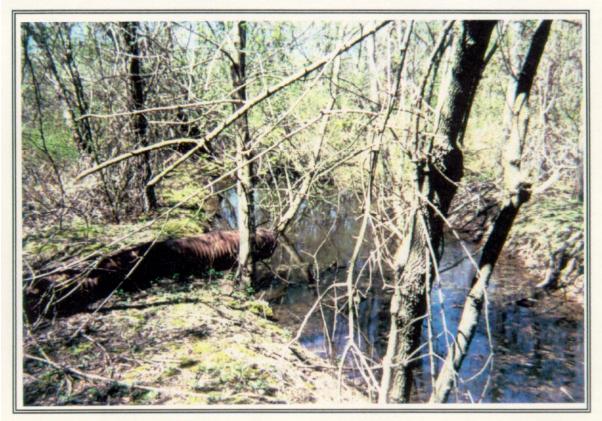
No.: 1-05 Date: 15 April 1994

Title: Pre-Construction: South end facing west



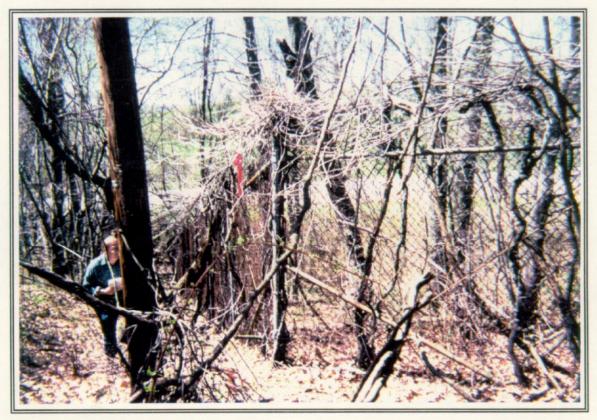
No.: 1-06 Date: 15 April 1994

Title: Pre-Construction: One of the southern liquid disposal pits



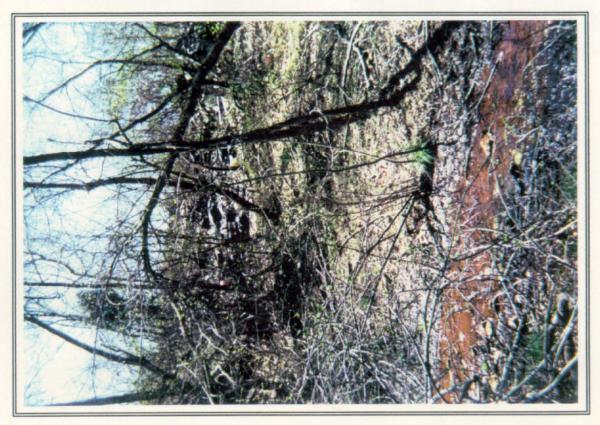
No.: <u>1-07</u> Date: <u>15 April 1994</u>

Title: Pre-Construction: Northern liquid disposal pit



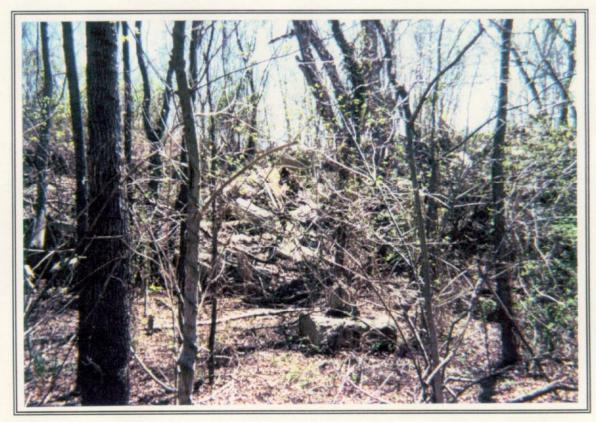
No.: <u>1-08</u> Date: <u>15 April 1994</u>

Title: Pre-Construction: Fence near Route 276



No.: 1-09 Date: 15 April 1994

Title: Pre-Construction: North side and Seep B facing south



No.: 1-10 Date: 15 April 1994

Title: Pre-Construction: North side facing south



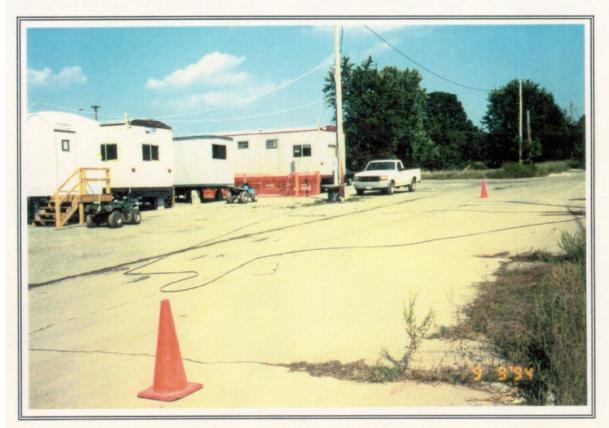
No.: 1-11 Date: 27 June 1994

Title: Mobilization Date: Entrance sign

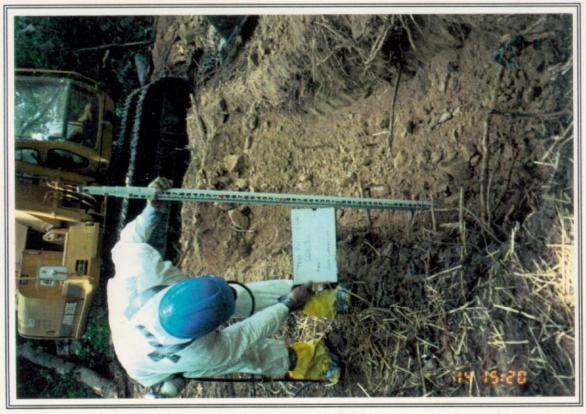


No.: 1-12 Date: 29 June 1994

Title: Site Setup: Temporary access road



No.: <u>1-13</u> Date: <u>9 September 1994</u> Title: <u>Site Setup: Project office trailers</u>



No.: <u>1-14</u> Date: <u>14 July 1994</u> Title: <u>Test Pits: TP-002B in Level B</u>



No.: 1-15 Date: 14 July 1994

Title: Test Pits: Excavating test pits at southern end



No.: <u>1-16</u> Date: <u>22 July 1994</u> Title: <u>Test Pits: TP-056A</u>



No.: <u>1-17</u> Date: <u>27 July 1994</u> Title: <u>Test Pits: TP-081A</u>



No.: <u>1-18</u> Date: <u>4 August 1994</u>

Title: Test Pits: TP-116A

# CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

**Erosion and Sedimentation Controls** 

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 1-19 Date: 18 August 1994

Title: E&S: Temporary controls for initial access to site



No.: 1-20 Date: 26 August 1994

Title: <u>E&S</u>: <u>Perimeter berm construction</u>



No.: 1-21 Date: 8 September 1994

Title: E&S: Weir board in a northern perimeter berm outlet



No.: 1-22 Date: 8 September 1994

Title: E&S: Rip-rap on a northern perimeter berm outlet



No.: 1-23 Date: 23 September 1994

Title: E&S: Southern perimeter berm to sediment trap #1



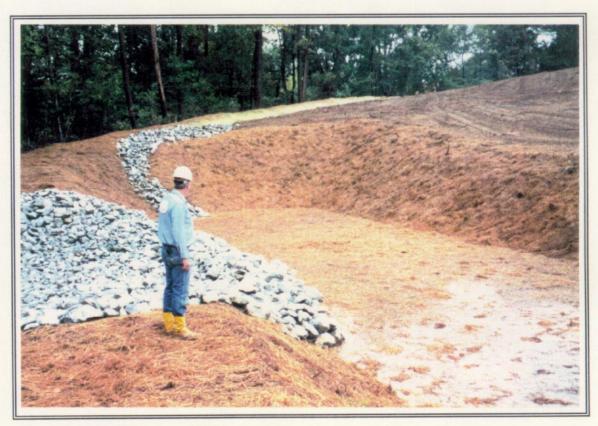
No.: 1-24 Date: 23 September 1994

Title: E&S: Sediment trap #1 after major storm



No.: 1-25 Date: 13 September 1994

Title: E&S: Sediment trap #2 and perimeter berm under construction



No.: 1-26 Date: 23 September 1994

Title: E&S: Inspecting sediment trap #2 after major storm



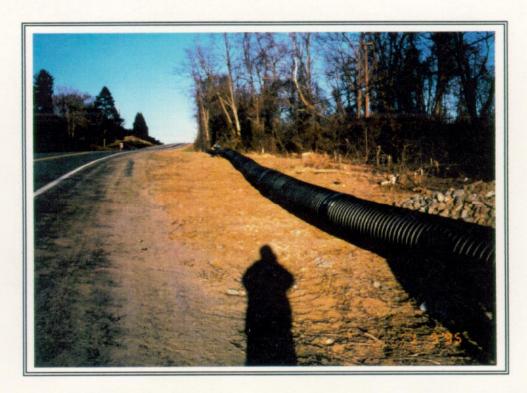
No.: 1-27 Date: 23 September 1994

Title: E&S: Inspecting ravine sediment trap after major storm



No.: 1-28 Date: 17 December 1994

Title: E&S: Stormwater by-pass from active rubble landfill



No.: 1-29 Date: 5 January 1995

Title: E&S: Stormwater diversion pipe along Route 276

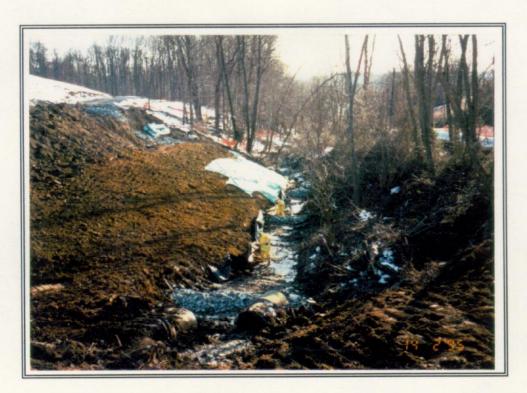


No.: 1-30 Date: 5 January 1995

Title: E&S: Stormwater diversion pipe along Route 276



No.: <u>1-31</u> Date: <u>26 January 1995</u> Title: <u>E&S: Stormwater by-pass sump</u>



No.: 1-32 Date: 14 February 1995

Title: E&S: Upgrading controls along northern side



No.: 1-33 Date: 29 March 1995

Title: E&S: Northern silt fence barriers during capping



No.: 1-34 Date: 8 July 1995

Title: E&S: Erosion rill controls on landfill cap

#### CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Seeps
- Demolition
- Clearing and Grubbing
- Underground Storage Tanks (UST)
- Borrow Pits

LANTDIV CONTRACT NO. N62470-93-D-3032 DELIVERY ORDER #014 REMOVAL ACTION NAVAL TRAINING CENTER - BAINBRIDGE PORT DEPOSIT, MARYLAND

NTC - Bainbridge, Maryland: Site 1 - Old Landfill Area



No.: 1-35 Date: 29 July 1994

Title: Seeps: Seep A on northwest side



No.: <u>1-36</u> Date: <u>26 August 1994</u> Title: <u>Seeps: Seep A storage pool</u>



No.: 1-37 Date: 26 August 1994
Title: Seeps: Seep B on northeast side



No.: 1-38 Date: 26 August 1994
Title: Seeps: Seep B storage pool



No.: <u>1-39</u> Date: <u>19 July 1995</u> Title: <u>Demolition: Debris in ravine</u>



No.: 1-40 Date: 25 October 1994

Title: Demolition: Abandoning well GW-2



No.: 1-41 Date: 3 December 1994

Title: Demolition: Fence removal along Route 276



No.: 1-42 Date: 11 July 1994

Title: Clearing: Feller-buncher removing trees



No.: 1-43 Date: 19 July 1994

Title: Clearing: Along northwestern perimeter fenceline



No.: 1-44 Date: 2 August 1994

Title: Clearing: Chipping vegetative debris



No.: 1-45 Date: 8 September 1994

Title: Clearing: Progress on southern side



No.: 1-46 Date: 23 September 1994

Title: Clearing: Progress on northern side



No.: 1-47 Date: 2 December 1994

Title: Clearing: Topping trees near powerlines on northern side



No.: <u>1-48</u> Date: <u>23 May 1995</u>

Title: Clearing: Stump chipping on drill field



No.: <u>1-49</u> Date: <u>9 November 1994</u> Title: <u>UST: At borrow pit area</u>



No.: 1-50 Date: 9 November 1994
Title: UST: Pumping out tank contents



No.: 1-51 Date: 9 November 1994

Title: UST: Transport of tank contents to off-base disposal



No.: 1-52 Date: 16 December 1994

Title: UST: At borrow area



No.: <u>1-53</u> Date: <u>2 March 1995</u> Title: <u>UST: East side UST removal</u>



No.: 1-54 Date: 3 April 1995

Title: UST: From H-Building stormwater pipe alignment



No.: <u>1-55</u> Date: <u>15 September 1994</u>
Title: <u>Borrow Pits: Power screen setup</u>



No.: 1-56 Date: 26 October 1994

Title: Borrow Pits: Multiple screening operations

## CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Excavation of Wastes
- Placement of Wastes
- Final Cover

LANTDIV CONTRACT NO. N62470-93-D-3032 DELIVERY ORDER #014 REMOVAL ACTION NAVAL TRAINING CENTER - BAINBRIDGE PORT DEPOSIT, MARYLAND OHM PROJECT NO. 16006



No.: 1-57 Date: 24 August 1994

Title: Excavation: Clearing the southern finger pits



No.: 1-58 Date: 4 November 1994

Title: Excavation: Removal and solidification at southern finger pits



No.: 1-59 Date: 15 December 1994

Title: Excavation: Southern finger pits after removal action



No.: 1-60 Date: 15 December 1994

Title: Excavation: Intrusion markers at southern finger pits



No.: 1-61 Date: 15 December 1994

Title: Excavation: Southern finger pits being backfilled



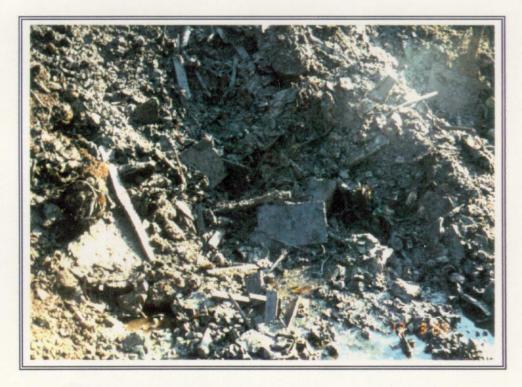
No.: 1-62 Date: 15 December 1994

Title: Excavation: Southern finger pits after backfilling



No.: 1-63 Date: 13 March 1995

Title: Excavation: Berm of active rubble landfill sediment trap



No.: 1-64 Date: 13 March 1995

Title: Excavation: Debris from sediment trap berm



No.: 1-65 Date: 15 March 1995

Title: Excavation: Material below sediment trap berm



No.: 1-66 Date: 16 March 1995

Title: Excavation: Reconstruction of sediment trap berm



No.: 1-67 Date: 20 March 1995

Title: Excavation: Finishing grade on reconstructed berm



No.: 1-68 Date: 2 March 1995

Title: Excavation: Miscellaneous debris removal on east side



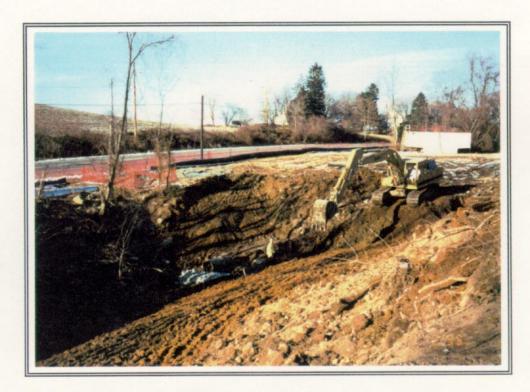
No.: 1-69 Date: 19 January 1995

Title: Excavation: Adjacent to Route 276



No.: 1-70 Date: 19 January 1995

Title: Excavation: Backfilling adjacent to Route 276



No.: 1-71 Date: 14 February 1995
Title: Excavation: Northwest side



No.: <u>1-72</u> Date: <u>15 February 1995</u> Title: <u>Excavation: Northwest side</u>



No.: 1-73 Date: 21 February 1995
Title: Excavation: Northwest side



No.: 1-74 Date: 21 February 1995

Title: Excavation: Existing stormwater culvert below northwest side



No.: <u>1-75</u> Date: <u>23 February 1995</u> Title: <u>Excavation: Northwest side</u>



No.: <u>1-76</u> Date: <u>27 February 1995</u> Title: <u>Excavation: Northwest side</u>



No.: <u>1-77</u> Date: <u>3 March 1995</u> Title: <u>Excavation: Northwest side</u>



No.: <u>1-78</u> Date: <u>5 March 1995</u> Title: <u>Excavation: Northwest side</u>



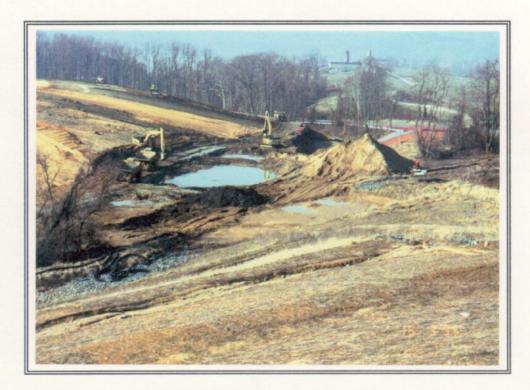
No.: 1-79 Date: 7 March 1995

Title: Excavation: Northwest side before heavy rain



No.: 1-80 Date: 9 March 1995

Title: Excavation: Northwest side after heavy rain



No.: <u>1-81</u> Date: <u>15 March 1995</u> Title: <u>Excavation: Northwest side</u>



No.: <u>1-82</u> Date: <u>16 March 1995</u> Title: <u>Excavation: Northwest side</u>



No.: 1-83 Date: 23 September 1994

Title: Placement: Proof-rolling landfill surface



No.: 1-84 Date: 23 September 1994

Title: Placement: Gravity dams in ravine (Site 2 rubble)



No.: 1-85 Date: 8 October 1994

Title: Placement: Ravine area cells



No.: 1-86 Date: 9 October 1994

Title: Placement: Compacting ravine area



No.: <u>1-87</u> Date: <u>8 September 1994</u> Title: <u>Placement: Southwest side</u>



No.: <u>1-88</u> Date: <u>16 December 1994</u> Title: <u>Placement: Daily cover soil</u>



No.: <u>1-89</u> Date: <u>1 February 1995</u> Title: <u>Placement: On north side</u>



No.: <u>1-90</u> Date: <u>8 March 1995</u> Title: <u>Placement: On north side</u>



No.: <u>1-91</u> Date: <u>7 March 1995</u> Title: <u>Final Cover: Northeastern side</u>



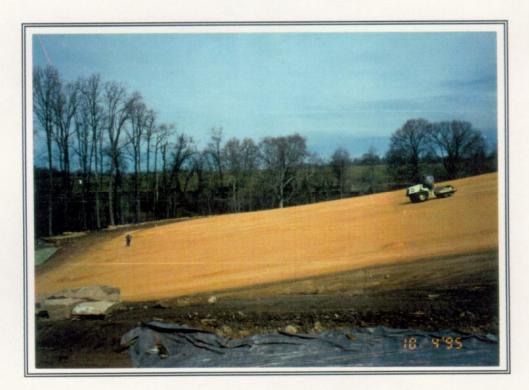
No.: 1-92 Date: 15 March 1995

Title: Final Cover: Second lift on northeastern side



No.: 1-93 Date: 24 March 1995

Title: Final Cover: Quality control compaction testing



No.: 1-94 Date: 10 April 1995

Title: Final Cover: Compaction and as-built surveying on southwest side

## CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Landfill Cap

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 1-95 Date: 9 December 1994

Title: Cap: Composting woodchips for topsoil layer



No.: <u>1-96</u> Date: <u>16 December 1994</u>
Title: <u>Cap: Geosynthetics storage area</u>



No.: <u>1-97</u> Date: <u>14 March 1995</u> Title: <u>Cap: Gas vent G-43 installation</u>



No.: 1-98 Date: 14 March 1995

Title: Cap: Lower riser pipe for gas vent

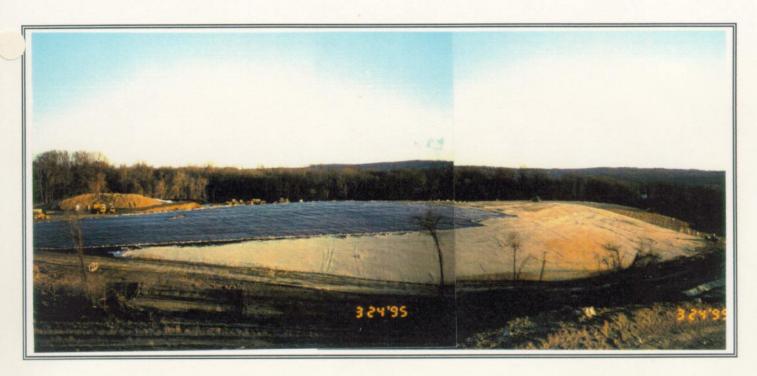


No.: <u>1-99</u> Date: <u>14 March 1995</u> Title: <u>Cap: Backfilled lower riser pipe</u>

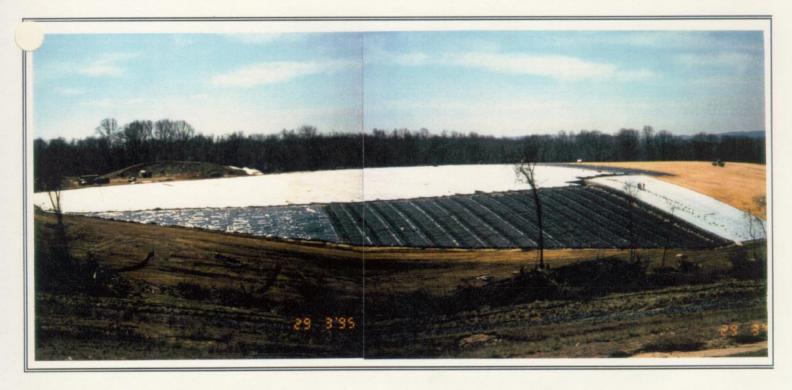


No.: 1-100 Date: 8 May 1995

Title: Cap: Boot welding at upper gas vent riser pipe



No.: 1-101 Date: 24 March 1995
Title: Cap: Geosynthetics installation



No.: 1-102 Date: 29 March 1995
Title: Cap: Geosynthetics installation



No.: 1-103 Date: 21 April 1995

Title: Cap: Anchor trench on northwest side



No.: 1-104 Date: 29 March 1995

Title: Cap: Completed anchor trench on southeast side



No.: <u>1-105</u> Date: <u>23 March 1995</u>

Title: Cap: Tying gas vent layer panels



No.: 1-106 Date: 1 April 1995

Title: Cap: Field seaming textured geomembrane panels



No.: 1-107 Date: 27 March 1995

Title: Cap: Quality control notations at patch



No.: 1-108 Date: 27 March 1995

Title: Cap: Geomembrane and sandbags



No.: <u>1-109</u> Date: <u>1 April 1995</u> Title: <u>Cap: Barrier soil layer lift</u>



No.: 1-110 Date: 11 April 1995
Title: Cap: Barrier soil layer installation



No.: 1-111 Date: 9 May 1995

Title: Cap: Topsoil lift



No.: <u>1-112</u> Date: <u>11 May 1995</u> Title: <u>Cap: Topsoil layer installation</u>

## CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Wetlands Restoration
- Site Restoration

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 1-113 Date: 20 April 1995

Title: Wetlands: Rough grading in cell A



No.: 1-114 Date: 21 April 1995

Title: Wetlands: Compacted clay floor in cell B



No.: 1-115 Date: 16 May 1995

Title: Wetlands: Finish topsoil grading



No.: <u>1-116</u> Date: <u>23 May 1995</u>
Title: <u>Wetlands: Upper plunge pool</u>



No.: 1-117 Date: 14 June 1995

Title: Wetlands: Erosion matting and plants in cell B



No.: 1-118 Date: 20 August 1995

Title: Wetlands: First season growth in cell A



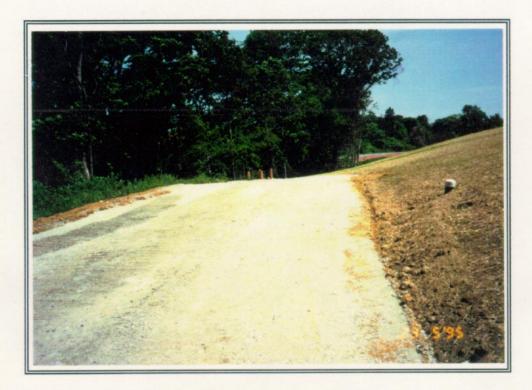
No.: 1-119 Date: 27 April 1995

Title: Restoration: Spillway for Route 276 culvert



No.: 1-120 Date: 16 May 1995

Title: Restoration: Hydroseeding cap on northwest side



No.: 1-121 Date: 23 May 1995

Title: Restoration: Permanent access road on northwest side



No.: 1-122 Date: 16 May 1995

Title: Restoration: Regraded borrow pits



No.: 1-123 Date: 23 May 1995

Title: Restoration: Lower stormwater retention basin



No.: 1-124 Date: 23 May 1995

Title: Restoration: Upper stormwater retention basin

## CONSTRUCTION PHOTOGRAPHS SITE 1: OLD LANDFILL AREA

- Storm Damage
- Repairs to Storm Damage

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 1-125 Date: 27 May 1995
Title: Damage: North side of cap



No.: 1-126 Date: 27 May 1995
Title: Damage: North side of cap



No.: 1-127 Date: 27 May 1995
Title: Damage: North side of cap



No.: 1-128 Date: 27 May 1995
Title: Damage: North side of cap



No.: 1-129 Date: 27 May 1995
Title: Damage: Southwest side of cap



No.: <u>1-130</u> Date: <u>27 May 1995</u> Title: <u>Damage: Wetland Cell B</u>



No.: 1-131 Date: 27 May 1995

Title: Damage: Between wetland cells



No.: <u>1-132</u> Date: <u>27 May 1995</u> Title: <u>Damage: Riparian terrace</u>



No.: 1-133 Date: 27 May 1995

Title: Damage: Sediment deposits in riparian terrace



No.: 1-134 Date: 27 May 1995

Title: Damage: Stream and northwest cap



No.: 1-135 Date: 27 May 1995
Title: Damage: Southeast side of cap



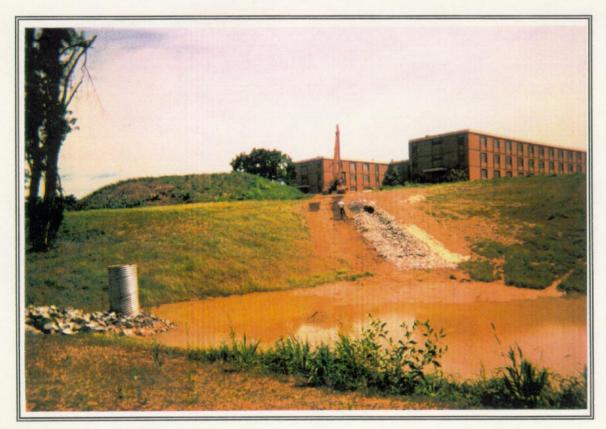
No.: 1-136 Date: 27 May 1995

Title: Damage: Southeast side below anchor trench



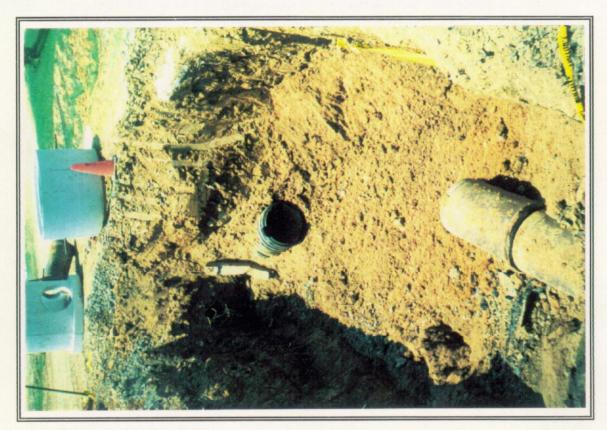
No.: 1-137 Date: 14 June 1995

Title: Repairs: Northern drill field stormwater conveyance pipe



No.: 1-138 Date: 14 June 1995

Title: Repairs: Northern drill field discharge into upper SWR basin



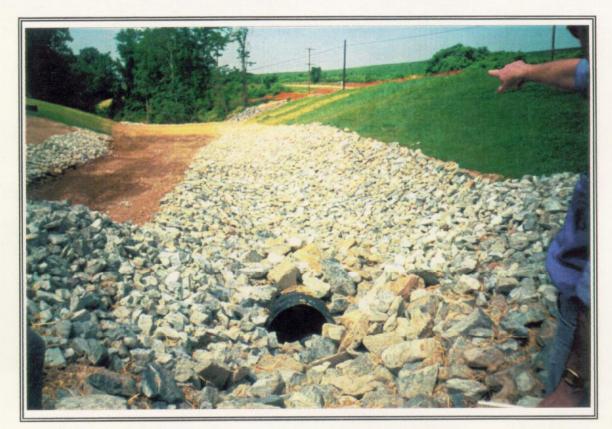
No.: 1-139 Date: 14 June 1995

Title: Repairs: Manhole for southern drill field stormwater



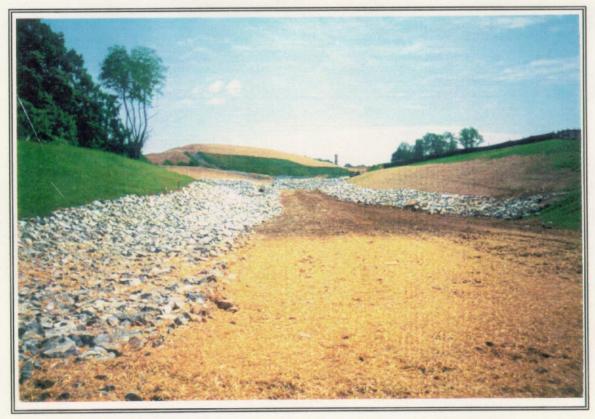
No.: 1-140 Date: 8 July 1995

Title: Repairs: Southern drill field discharge into upper SWR basin



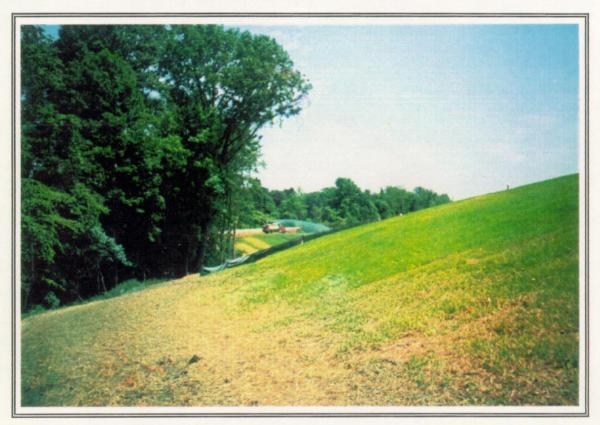
No.: 1-141 Date: 14 June 1995

Title: Repairs: Regraded riparian terrace facing west



No.: 1-142 Date: 14 June 1995

Title: Repairs: Regraded riparian terrace facing east



No.: 1-143 Date: 14 June 1995

Title: Repairs: Hydroseeding riparian terrace



No.: <u>1-144</u> Date: <u>14 June 1995</u>

Title: Repairs: Stabilizing sediment trap #2



No.: 1-145 Date: 8 August 1995

Title: Repairs: Runoff bypass under southern access road



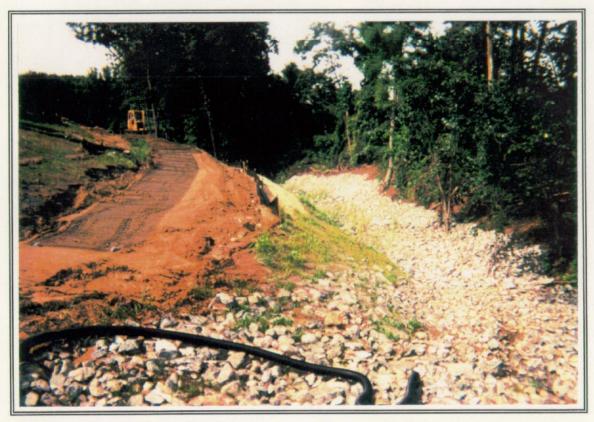
No.: 1-146 Date: 8 August 1995

Title: Repairs: Additional cap drains on northwest side



No.: 1-147 Date: 9 August 1995

Title: Repairs: Stream bank stabilization and perimeter fence



No.: 1-148 Date: 14 August 1995

Title: Repairs: Northern access road extension



No.: 1-149 Date: 16 August 1995

Title: Repairs: Stacked drainage pipe on northwest side



No.: 1-150 Date: 22 August 1995

Title: Repairs: Finish grading access road extension

## CONSTRUCTION PHOTOGRAPHS SITE 2: FORMER FIREFIGHTER TRAINING AREA

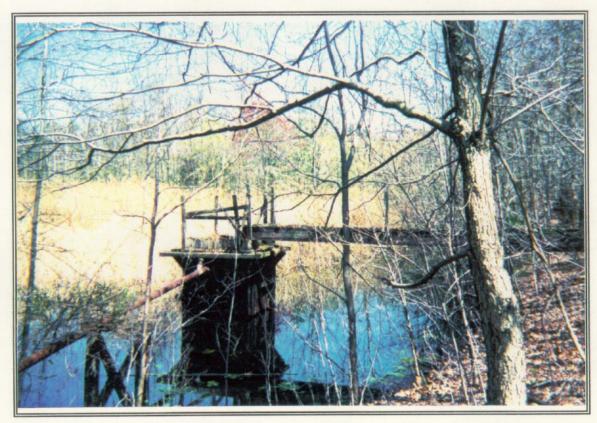
- Preconstruction Conditions
- Investigative Sampling
- Water Treatment Plant
- Demolition

LANTDIV CONTRACT NO. N62470-93-D-3032
DELIVERY ORDER #014
REMOVAL ACTION
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND
OHM PROJECT NO. 16006



No.: 2-01 Date: 15 April 1994

Title: Pre-Construction: Concrete pad, shell buildings, old barn, and well 2-GW-6



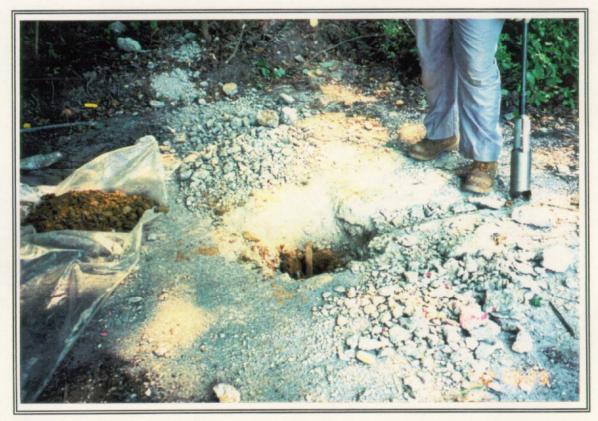
No.: 2-02 Date: 15 April 1994

Title: Pre-Construction: Outlet structure in southern corner of separator pit



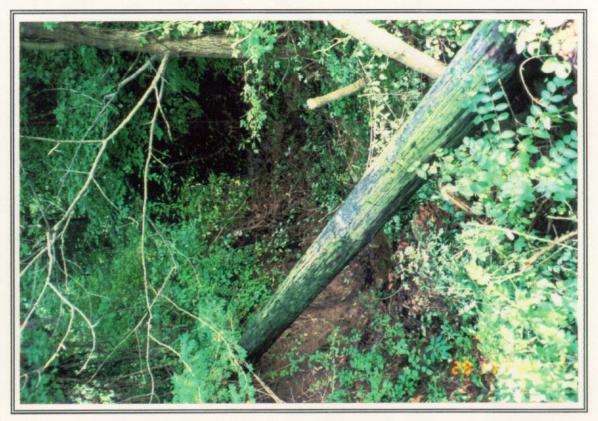
No.: 2-03 Date: 29 June 1994

Title: Pre-Construction: Precipitation inside shell building C



No.: 2-04 Date: 12 July 1994

Title: Investigative Sampling: Soil sample collection from below the concrete pad



No.: 2-05 Date: 28 July 1994

Title: Investigative Sampling: In-flow ditch to separator pit at sampling area C



No.: 2-06 Date: 28 July 1994

Title: Investigative Sampling: Asphaltic substance at in-flow ditch to separator pit



No.: 2-07 Date: 28 July 1994

Title: Clearing: Phragmites growth in the separator pit and well 2-GW-9



No.: 2-08 Date: 29 July 1994

Title: Demolition: Abandonment operation at well 2-GW-6 on concrete pad



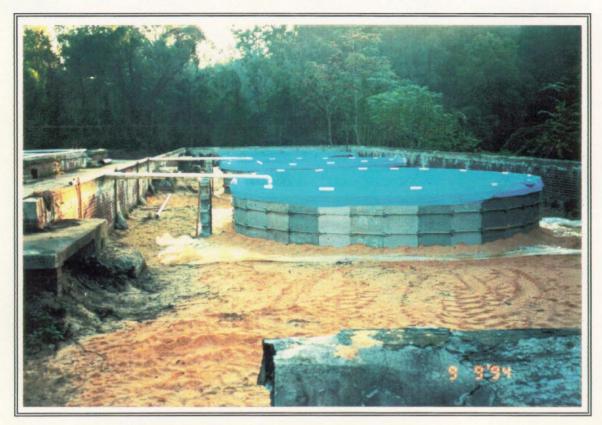
No.: 2-09 Date: 4 August 1994

Title: Investigative Sampling: Sampling sediments from floor of separator pit



No.: 2-10 Date: 8 September 1994

Title: Water Treatment Plant: Lined ModuTank with 1x106 gallon capacity for treated water storage



No.: 2-11 Date: 9 September 1994

Title: Water Treatment Plant: Storage pools for untreated water



No.: 2-12 Date: 12 September 1994

Title: Water Treatment Plant: 40-mil HDPE liner being installed inside ModuTank



No.: 2-13 Date: 20 September 1994

Title: Water Treatment Plant: Loading activated carbon into treatment cells



No.: 2-14 Date: 19 October 1994

Title: Water Treatment Plant: Influent from separator pit



No.: 2-15 Date: 9 October 1994

Title: Water Treatment Plant: Treated water stored in ModuTank



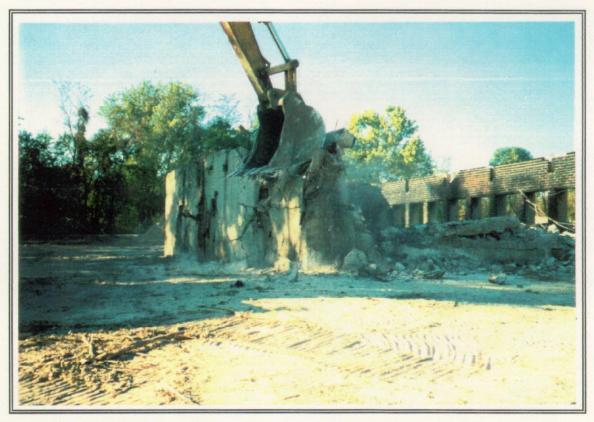
No.: 2-16 Date: 26 September 1994

Title: Erosion and Sedimentation Control: Installation of runoff diversion ditch at concrete pad



No.: 2-17 Date: 26 September 1994

Title: Demolition: Removal of concrete pad



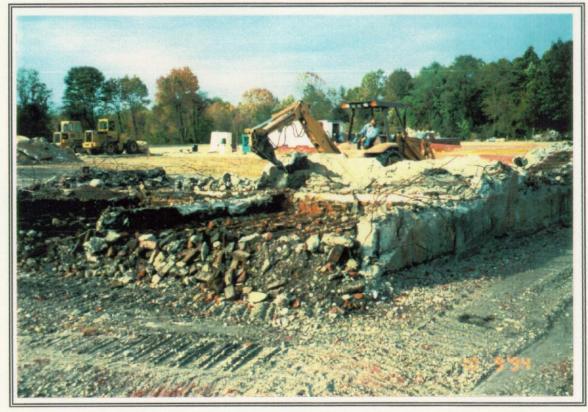
No.: 2-18 Date: 7 October 1994

Title: Demolition: Knocking down of shell building A



No.: 2-19 Date: 8 October 1994

Title: Demolition: Rubble of shell buildings; note cleared separator pit in background



No.: 2-20 Date: 9 October 1994

Title: Demolition: Removal of reinforced concrete walls and footers of shell buildings

## CONSTRUCTION PHOTOGRAPHS SITE 2: FORMER FIREFIGHTER TRAINING AREA

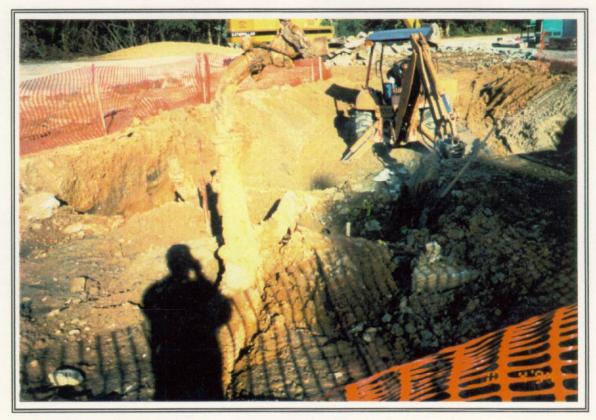
- Removal Action at Former UST Locations
- Removal Action at Separator Vault
- Backfilling Concrete Pad Excavations

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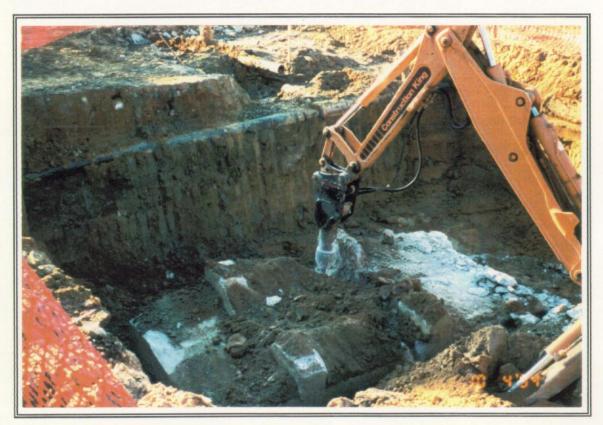
No.: 2-21 Date: 29 September 1994

Title: <u>UST #5: Removal of visually stained soils</u>



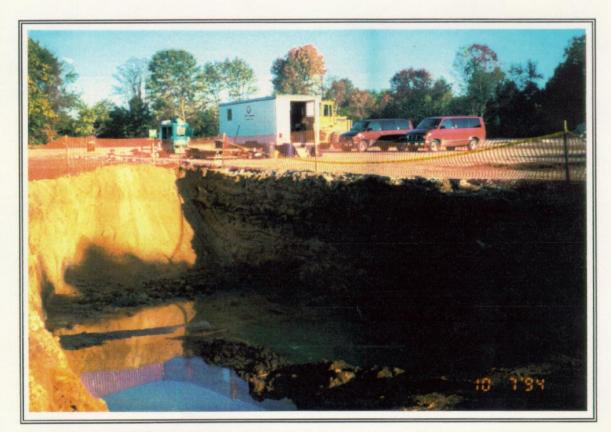
No.: 2-22 Date: 4 October 1994

Title: UST #5: Demolition of piping and tank cradle



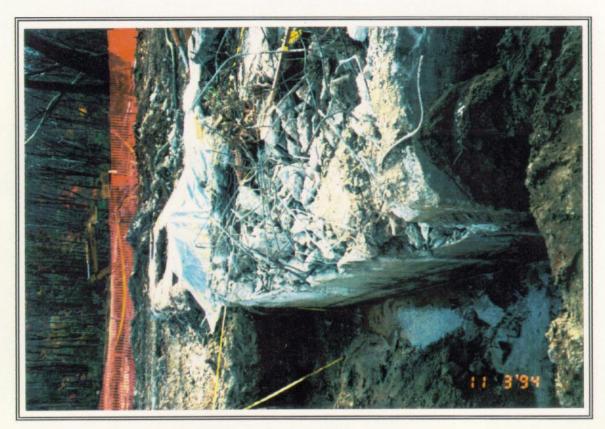
No.: 2-23 Date: 4 October 1994

Title: UST #5: Demolition of tank cradle



No.: 2-24 Date: 7 October 1994

Title: UST #5: After demolition and soil removal



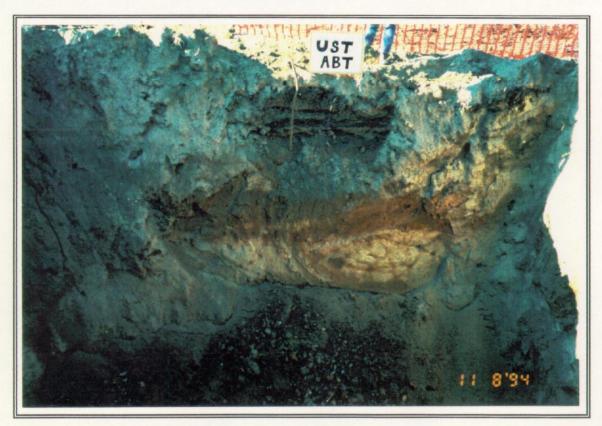
No.: 2-25 Date: 3 November 1994

Title: Separator Vault: Demolition of reinforced concrete vault



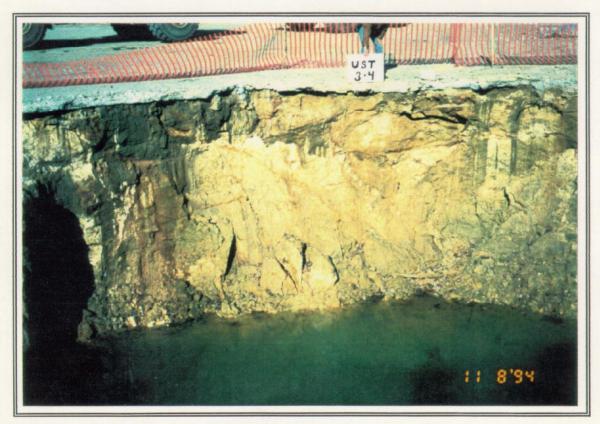
No.: 2-26 Date: 3 December 1994

Title: Separator Vault: After demolition and initial soil removal; solidification additive pile to right



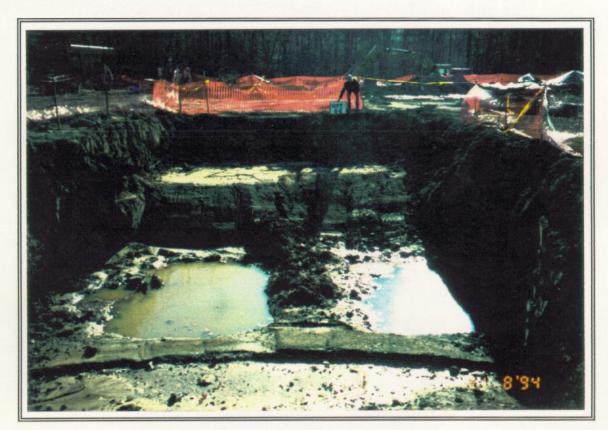
No.: 2-27 Date: 8 November 1994

Title: <u>UST-ABT</u>: Excavation at former Administration Building tank location



No.: 2-28 Date: 8 November 1994

Title: UST #3 and #4: Excavation after removal of impacted soils



No.: 2-29 Date: 8 November 1994

Title: UST #5 and #6: Excavation after removal of impacted soils



No.: 2-30 Date: 8 November 1994

Title: UST #7 and #8: Excavation after removal of impacted soils



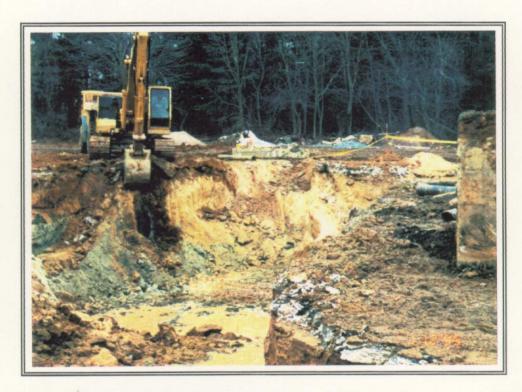
No.: 2-31 Date: 8 November 1994

Title: UST #9: Excavation after removal of impacted soils



No.: 2-32 Date: 8 November 1994

Title: UST #10: Excavation after removal of impacted soils



No.: 2-33 Date: 12 January 1995

Title: Separator Vault: Additional removal of impacted soils



No.: <u>2-34</u> Date: <u>12 January 1995</u>

Title: Separator Vault: Impacted soil layer on northwest side



No.: 2-35 Date: 13 January 1995

Title: Separator Vault: Excavation after removal of impacted soils



No.: 2-36 Date: 19 January 1995

Title: Separator Vault: Backfilling with sand

NTC - Bainbridge, Maryland: Site 2 - Former Fire Training Area

Title: Separator Vault: Backfilling with sand. Note: 50,000-gallon treated water storage pool in background. No.: 2-37 Date: 18 January 1995

## CONSTRUCTION PHOTOGRAPHS SITE 2: FORMER FIREFIGHTER TRAINING AREA

- Removal Action at Separator Pit
- Confirmation Sampling
- Site Restoration
- Removal Action at Pesticide Area

LANTDIV CONTRACT NO. N62470-93-D-3032 DELIVERY ORDER #014 REMOVAL ACTION NAVAL TRAINING CENTER - BAINBRIDGE PORT DEPOSIT, MARYLAND OHM PROJECT NO. 16006



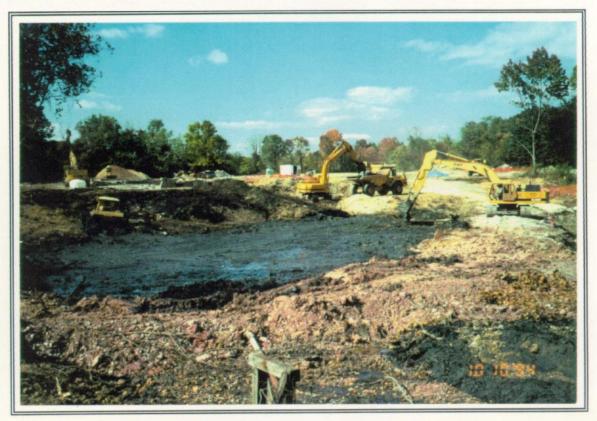
No.: 2-38 Date: 26 September 1994

Title: Separator Pit: USEPA paint filter test in progress to verify solidification



No.: 2-39 Date: 8 October 1994

Title: Separator Pit: Sediment removal from floor and solidification in northern half of pit



No.: 2-40 Date: 10 October 1994

Title: Separator Pit: Sediment removal operations in southern half of pit



No.: 2-41 Date: 11 October 1994

Title: Separator Pit: Sediment removal operation and solidification in southern half of pit



No.: 2-42 Date: 11 October 1994

Title: Separator Pit: Sediment removal operation in southern half of pit



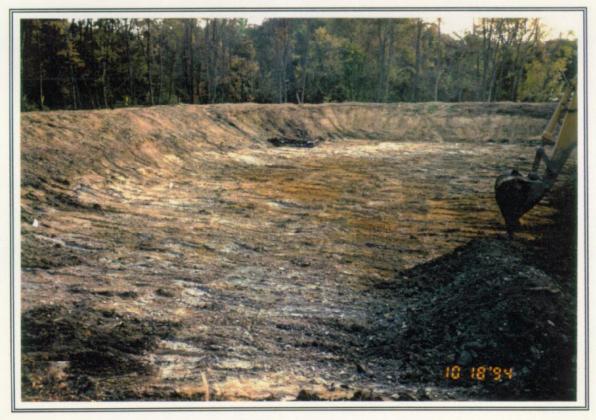
No.: 2-43 Date: 13 October 1994

Title: Separator Pit: Scraping sediment and impacted soils from western berm



No.: 2-44 Date: 17 October 1994

Title: Separator Pit: Impacted soil removal operations



No.: 2-45 Date: 18 October 1994

Title: Separator Pit: Impacted soil removal and pin flags at confirmation sampling locations



No.: 2-46 Date: 17 October 1994

Title: Separator Pit: Removal of impacted soils at outflow ditch



No.: 2-47 Date: 19 October 1994

Title: Separator Pit: Excavation of impacted soils at northwest corner



No.: 2-48 Date: 19 October 1994

Title: Separator Pit: Excavation of impacted soils at southwest corner



No.: 2-49 Date: 20 October 1994

Title: Separator Pit: Selective soil removal and pin flags at confirmation sample locations



No.: 2-50 Date: 21 October 1994

Title: Confirmation Sampling: Confirmation sample location D42C on floor of separator pit



No.: 2-51 Date: 21 October 1994

Title: Confirmation Sampling: Confirmation sampling location D44C in separator pit



No.: 2-52 Date: 3 November 1994

Title: Separator Pit: Removal of impacted soils at east berm and outflow ditch in background



No.: 2-53 Date: 3 November 1994

Title: Separator Pit: Removal of impacted soils in southeast corner and outflow ditch



No.: 2-54 Date: 9 November 1994

Title: Separator Pit: Impacted soil excavation and final floor scraping at southwest corner



No.: 2-55 Date: 1 December 1994

Title: Former Separator Pit: Groundwater from springs in excavation floor prior to backfilling



No.: 2-56 Date: 13 December 1994

Title: Site Restoration: Initial backfill lift for wetland restoration in former separator pit



No.: 2-57 Date: 20 December 1994

Title: Site Restoration: Backfill for wetland restoration and intrusion marker strips



No.: 2-58 Date: 20 December 1994

Title: Site Restoration: Backfill for wetland restoration and well 2-GW-3



No.: 2-59 Date: 21 December 1994

Title: Site Restoration: Compost for wetland soils and hydraulic control weir



No.: 2-60 Date: 5 January 1995

Title: Site Restoration: Restored outflow ditch facing northwest



No.: 2-61 Date: 24 January 1995

Title: Site Restoration: Installation of rip-rap swale leading into restored wetland



No.: 2-62 Date: 26 January 1995

Title: Site Restoration: Rip-rap swale facing northeast



No.: 2-63 Date: 26 January 1995

Title: Site Restoration: Rip-rap chute leading into restored wetlands facing east



No.: 2-64 Date: 23 May 1995

Title: Site Restoration: Restored wetlands at former separator pit facing southeast with hydraulic control weir in background and well 2-GW-3 to right



No.: 2-65 Date: 23 May 1995

Title: Site Restoration: Restored wetlands at former separator pit facing south with

well 2-GW-3 to left and rip-rap swale to right



No.: 2-66 Date: 23 May 1995

Title: Site Restoration: Restored concrete pad area facing southwest



No.: 2-67 Date: 27 May 1995

Title: Site Restoration: Restored wetlands in former separator pit facing southeast



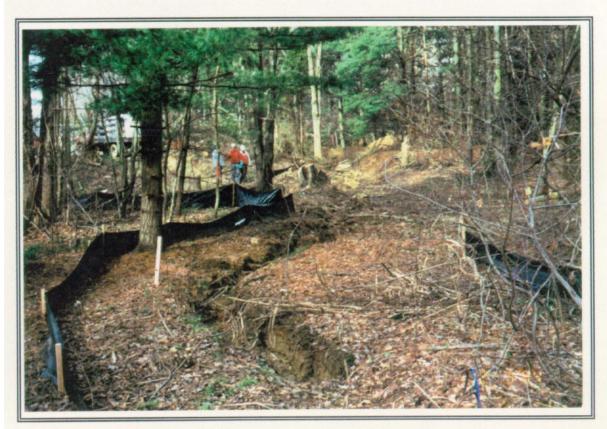
No.: 2-68 Date: 27 May 1995

Title: Site Restoration: Restored wetlands in former separator pit facing southeast



No.: 2-69 Date: 27 May 1995

Title: Site Restoration: Former pad area and bog-mat with remaining pad in background



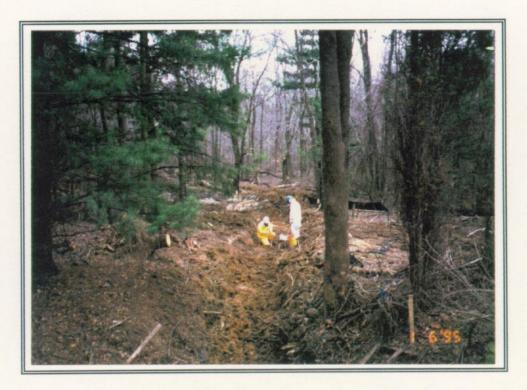
No.: 2-70 Date: 3 December 1994

Title: Pesticide Area: Impacted soils removal area along an existing drainage swale



No.: 2-71 Date: 9 December 1994

Title: Pesticide Area: Impacted soils removal area immediately north of separator pit



No.: 2-72 Date: 6 January 1995

Title: Pesticide Area: Sampling a pesticide impacted soils removal area



No.: 2-73 Date: 6 January 1995

Title: Pesticide Area: Sampling a pesticide impacted soils removal area



No.: 2-74 Date: 1 February 1995

Title: Former Pesticide Area: Backfilling for restoration of forested wetlands



No.: 2-75 Date: 23 May 1995

Title: Site Restoration: Restored wetlands in former pesticide impacted soil

removal areas facing southeast

## CONSTRUCTION PHOTOGRAPHS WETLAND MITIGATION AREA

- Preconstruction Conditions
- Erosion and Sedimentation Controls
- Demolition
- Clearing and Grubbing
- Rough Grading
- Fine Grading
- Topsoil Layer
- Planting
- Site Restoration
- Wetlands

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No.: 3-01 Date: 24 August 1994

Title: Pre-construction Conditions: Building #593 facing northwest



No.: 3-02 Date: 26 October 1994

Title: Erosion and Sedimentation Controls: Installing silt fence along shoreline



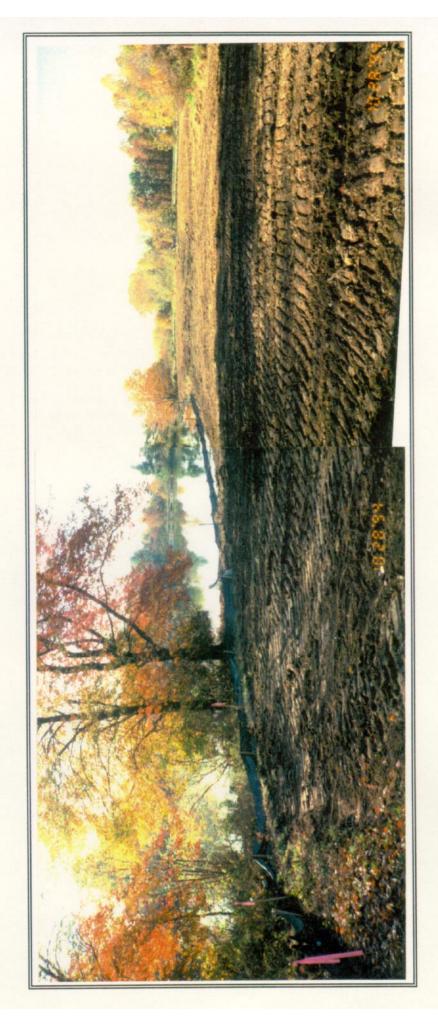
No.: 3-03 Date: 26 October 1994

Title: Demolition: Removing abandoned power pole



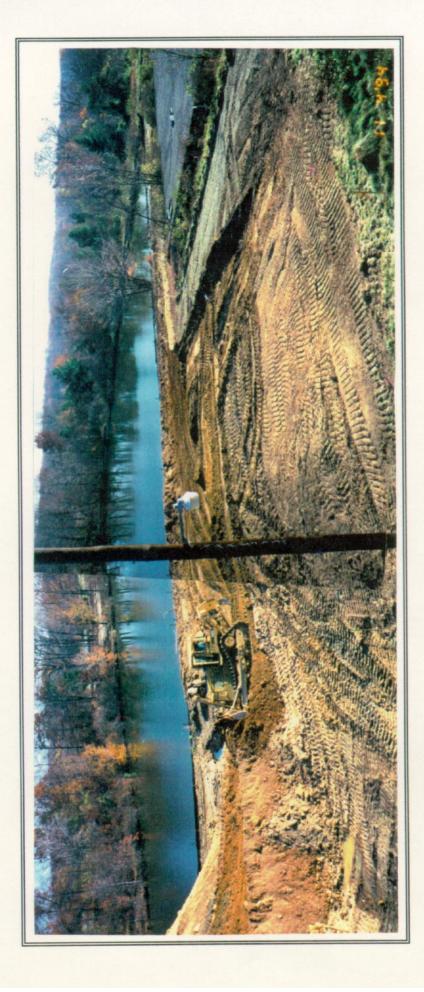
No.: 3-04 Date: 26 October 1994

Title: Clearing and Grubbing: Stripping topsoil



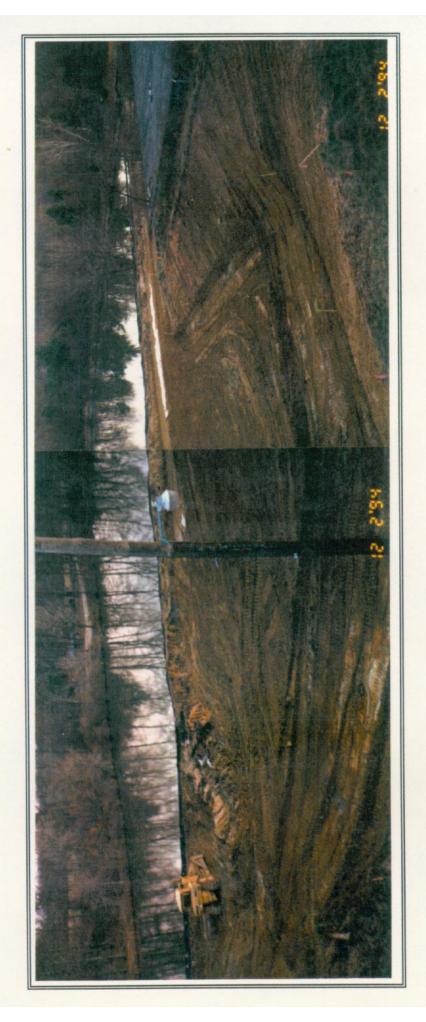
No.: 3-05 Date: 28 October 1994

Title: Clearing and Grubbing: At completion of clearing work



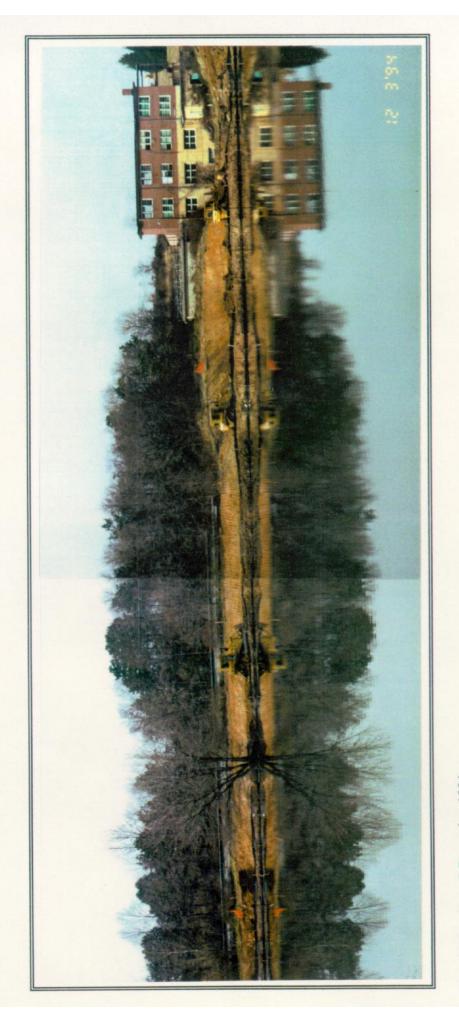
No.: 3-06 Date: 4 November 1994

Title: Rough Grading: Initial shaping and rough grading



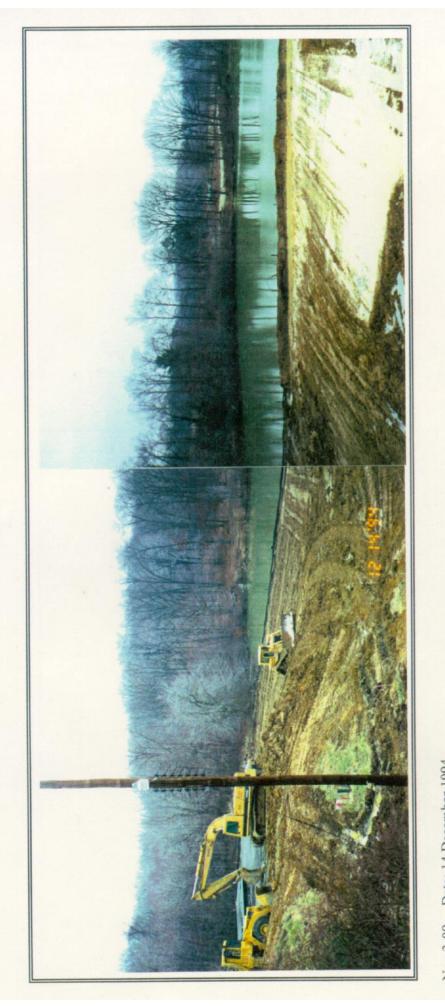
No.: 3-07 Date: 2 December 1994

Title: Rough Grading: At completion of rough grading



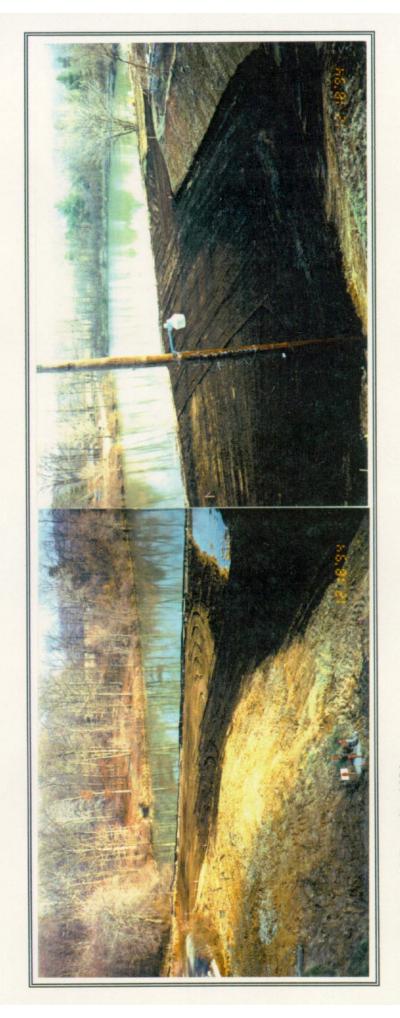
No.: 3-08 Date: 3 December 1994

Title: Fine Grading: At beginning of fine grading



No.: 3-09 Date: 14 December 1994

Title: Fine Grading: Near completion of fine grading work



No.: 3-10 Date: 18 December 1994

Title: Topsoil Layer: Topsoil spreading about 50% complete



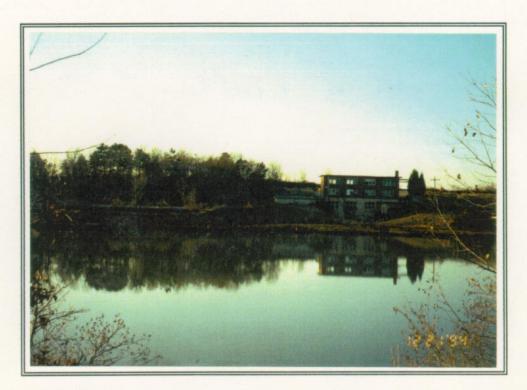
No.: 3-11 Date: 21 December 1994

Title: Planting: Installation of wetland plants completed



No.: 3-12 Date: 21 December 1994

Title: Planting: Installation of wetland plants completed



No.: 3-13 Date: 21 December 1994

Title: Planting: Installation of wetland plants completed



No.: 3-14 Date: 5 January 1995

Title: Site Restoration: Seeding completed



No.: 3-15 Date: 23 May 1995

Title: Wetlands: First season growth



No.: 3-16 Date: 23 May 1995

Title: Wetlands: First season growth



No.: 3-17 Date: 23 May 1995

Title: Wetlands: First season growth



No.: 3-18 Date: 23 May 1995

Title: Wetlands: First season growth

## POST-CONSTRUCTION PHOTOGRAPHS

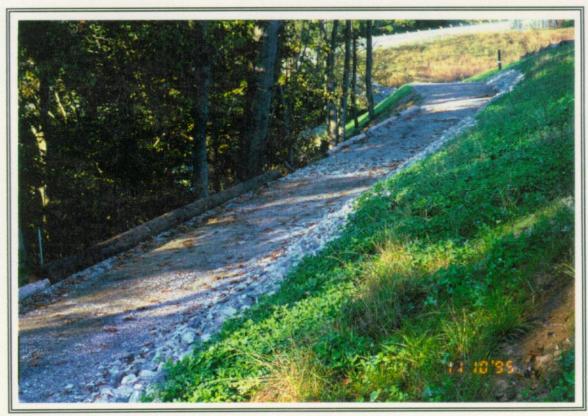
- Site 1: Old Landfill Area
- Site 2: Former Firefighter Training Area
- Wetland Mitigation Area

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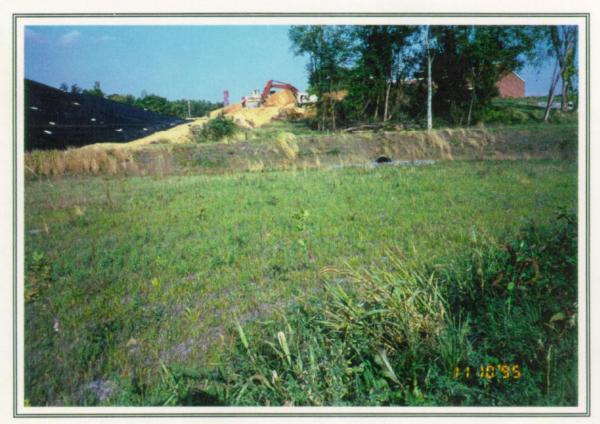
No.: PC-101 Date: 11 October 1995

Title: Site 1: Access road on northwest side

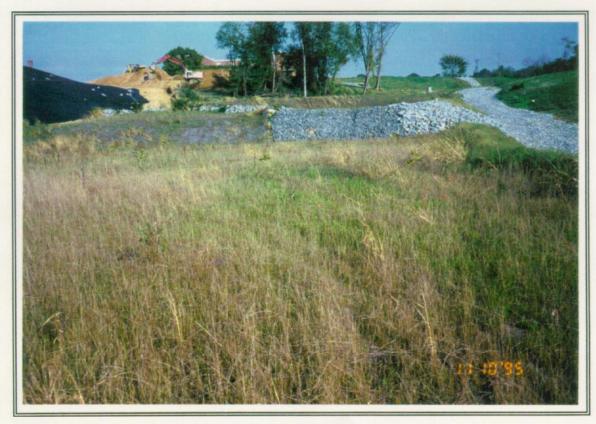


No.: PC-102 Date: 11 October 1995

Title: Site 1: Access road on northwest side



No.: PC-103 Date: 11 October 1995
Title: Site 1: Forested wetland cell A



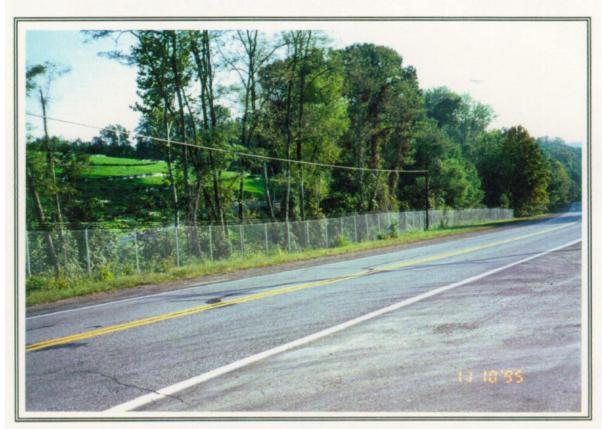
No.: <u>PC-104</u> Date: <u>11 October</u>
Title: <u>Site 1: Forested wetland cell B</u>



No.: <u>PC-105</u> Date: <u>11 October 1995</u> Title: <u>Site 1: Lower plunge pool</u>



No.: PC-106 Date: 11 October 1995
Title: Site 1: Riparian terrace areas



No.: PC-107 Date: 11 October 1995

Title: Site 1: New perimeter fence along Route 276



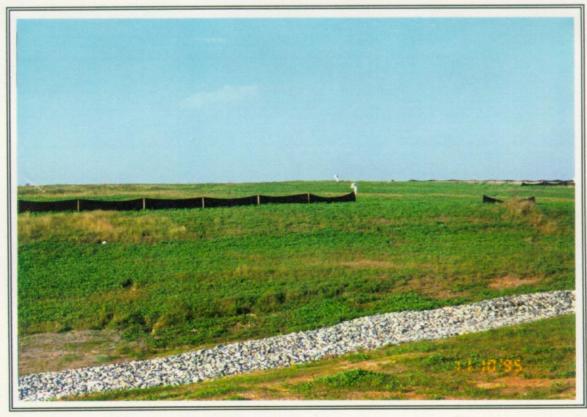
No.: PC-108 Date: 11 October 1995

Title: Site 1: New perimeter gate along Route 276



No.: PC-109 Date: 11 October 1995

Title: Site 1: Fence grate at Route 276 culvert outlet

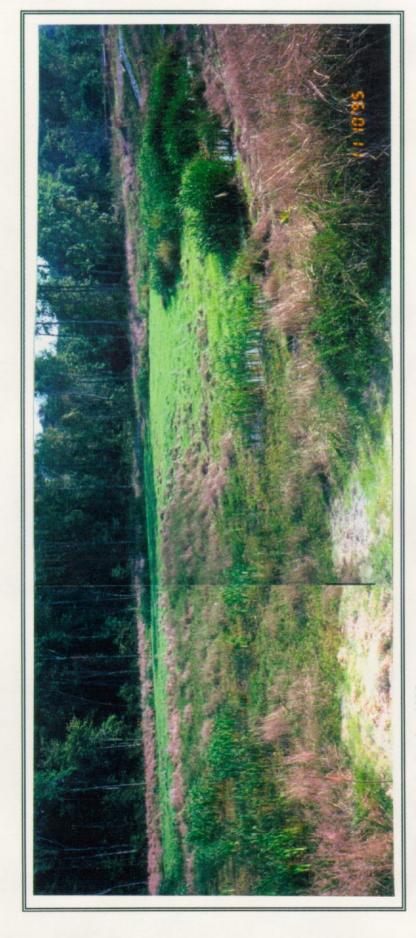


No.: PC-110 Date: 11 October 1995
Title: Site 1: Southern side of landfill cap



NTC - Bainbridge, Maryland: Post-Construction Photographs

Title: Site 2: Former concrete pad area



NTC - Bainbridge, Maryland: Post-Construction Photographs

No.: PC-202 Date: 11 October 1995

Title: Site 2: Restored wetlands in former oil/water separator pit



No.: PC-301 Date: 11 October 1995

Title: Wetland Mitigation Area: Facing east



No.: PC-302 Date: 11 October 1995

Title: Wetland Mitigation Area: Facing northeast



No.: PC-303 Date: 11 October 1995

Title: Wetland Mitigation Area: Western hillside



No.: PC-304 Date: 11 October 1995

Title: Wetland Mitigation Area: Facing north



No.: PC-305 Date: 11 October 1995

Title: Wetland Mitigation Area: Protective housing for survey monument SM-2



No.: PC-306 Date: 11 October 1995

Title: Wetland Mitigation Area: Brass cap of survey monument SM-2

## APPENDIX I AS-BUILT DRAWINGS

## LIST OF DRAWINGS

DRAWING NO.	SHEET NO.	TITLE
16006-T3	AB-001	TITLE SHEET
16006-F45	AB-002	1994 PROJECT SCHEDULE
16006-F46	AB-003	1995 & 1996 PROJECT SCHEDULE
16006-F40	AB-101	SITE NO. 1 - TOPOGRAPHY OF PRE-CONSTRUCTION CONDITIONS WITH TEST PIT LOCATIONS
16006-F48	AB-102	SITE NO. 1 - TOPOGRAPHY OF LANDFILL CAP - TOP OF WASTE LAYER
16006-F62	AB-103	SITE NO. 1 - TOPOGRAPHY OF FINAL COVER LAYER
16006-F63	AB-104	SITE NO. 1 - TOPOGRAPHY OF BARRIER SOIL LAYER
16006-F49	AB-105	SITE NO. 1 - TOPOGRAPHY OF POST-CONSTRUCTION CONDITIONS
16006-F50	AB-106	SITE NO. 1 - LANDFILL CAP GEOMEMBRANE PANEL LAYOUT
16006-F51	AB-107	SITE NO. 1 - TOPOGRAPHY OF WETLAND RESTORATION AND PROFILE
16006-F52	AB-108	SITE NO. 1 - SECTIONS - LANDFILL CAP
16006-F59	AB-109	SITE NO. 1 - MISCELLANEOUS DETAILS - SHEET 1 OF 2
16006-F60	AB-110	SITE NO. 1 - MISCELLANEOUS DETAILS - SHEET 2 OF 2
16006-F22	AB-201	SITE NO. 2 - TOPOGRAPHY OF PRE-CONSTRUCTION CONDITIONS
16006-F54	AB-202	SITE NO. 2 - TOPOGRAPHY OF CONTAMINATED SOIL EXCAVATIONS
16006-F64	AB-203	SITE NO. 2 - TOPOGRAPHY OF POST-CONSTRUCTION CONDITIONS
16006-F39	AB-204	SITE NO. 2 - PLANTING AND SEEDING AREAS
16006-F61	AB-205	SITE NO. 2 - SECTIONS AND DETAILS
16006-F38	AB-301	WETLANDS MITIGATION AREA - TOPOGRAPHY, SECTION, AND DETAILS